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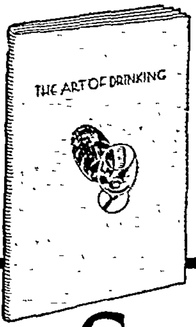

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ADDRESSES AND ORIGINAL ARTICLES

CARDIOVASCULAR SYPHILIS *

By E. Noble Chamberlain, M.D., M.Sc. Liverp.,
M.R.C.P. Lond.

SENIOR ASSISTANT PHYSICIAN AND CARDIOLOGIST, ROYAL SOUTHERN HOSPITAL, LIVERPOOL; LECTURER ON PHYSIOLOGY IN THE UNIVERSITY OF LIVERPOOL

It is not the purpose of this paper to deal with the pathological aspects of cardiovascular syphilis, but rather to emphasise the clinical features of a protean disease. This may, perhaps, best be secured by describing separately the recognised types.

Aortitis as the precursor of aneurysm and of syphilitic aortic regurgitation is of paramount importance, and its early recognition might do much to avoid its serious sequelæ. Yet when we inquire how such a diagnosis may be made we are confronted with great but not unexpected difficulties, for the microscopical changes are well advanced before any detectable anatomical disturbances take place. Certain symptoms and signs, however, when found in combination may be sufficient to warrant a diagnosis. In the absence of gross arterio-sclerosis and arterial hypertension, accentuation of and particularly a metallic ringing quality of the second aortic sound is often regarded as a suggestive sign, though it is so common in persons over 50 that due care must be taken in appraising its value as a sign of aortitis. By contrast, a diminution in the intensity of the second aortic sound may be an early indication of an aortic leak, though such a diagnosis cannot, of course, be established on this sign alone.

Systolic murmurs over the aortic area are of doubtful significance, but some regard them as significant when found in conjunction with other signs of aortitis. Possibly percussion may reveal a little increase in the aortic dullness. These signs may be accompanied by symptoms such as pain and breathlessness, and the latter is often nocturnal. It is natural that as the diagnosis rests on such equivocal signs as these, some more decisive method should be sought.

Radiological examinations, both by teleradiogram and screening, have been found of considerable service in skilled hands, though diagnosis of aortitis with X rays is not possible unless other physical signs support it. Thus, whilst Kurtz and Eyster[1] found fluoroscopic evidence of aortitis in 90 per cent. of cases of acquired syphilis, Ingraham and Maynard[2] found no such evidence in early syphilis, and Bach and Worster-Drought[3] in only 2 out of 25 cases of neurosyphilis.

The radiological criteria of a pathological aorta as given by David Steel[4] are as follows: (1) a dense shadow with a hazy border; (2) a high, dense, prominent aortic knob; (3) irregular and also general dilatation—the most important sign; (4) increased pulsation. Other writers in general agree with this statement, but much difference of opinion exists as to the accuracy of diagnosis based upon radiological methods. All are agreed that the facts must be pieced carefully together, and may under certain circumstances justify a grave suspicion of aortitis. Even then the specific nature of the lesion does not follow, and arterio-sclerotic forms of aortitis may be mistaken for those due to syphilis.

In making a differential diagnosis, a positive Wassermann reaction is of moment and may be called forth by a provocative dose of organic arsenic, but is by no means conclusive of the syphilitic nature of the disease. Search should be made for other signs of syphilis, for example, of the nervous system or viscera, and the past history of the patient must be considered. Any suspicion of aneurysmal dilatation is much in favour of syphilis, whilst aortic leakage in the absence of a rheumatic history and particularly in persons over 35 is nearly always syphilitic.

Aneurysm, the direct sequel of aortitis, needs little discussion in this paper, for its diagnosis is sufficiently familiar and its syphilitic origin universally admitted.

AORTIC REGURGITATION

Another sequel of syphilitic aortitis deserves attention in view of the occasional difficulty in separating syphilitic cases from those due to rheumatism and other causes. Aortic leakage is sometimes found in old age associated with arterio-sclerotic dilatation of the aorta, but cases of this type are rare and can be dismissed here. Another cause of aortic incompetence sometimes overlooked in differential diagnosis is infective endocarditis, especially in its subacute form. If systematic search is made in all valvular lesions for pyrexia, enlargement of the spleen, petechiæ, clubbing of the fingers, hæmaturia, and other signs of systemic infection this possibility will not escape the observer. Rupture of the aortic cusps is an unusual cause of incompetence with a characteristic history of severe trauma.

When these rare causes have been excluded the diagnosis as a rule rests between aortic regurgitation of rheumatic and of syphilitic origin. In distinguishing these, age is of first importance—the rheumatic type generally occurring in children and young adults, the syphilitic in middle age. Rheumatic cases may not, of course, be recognised until mid-life, especially when the damage to the valves has been limited and non-progressive. The history, though at times conclusive, is frequently of little value, for it is well known that mild forms of rheumatism may escape notice, while a history of syphilis is often concealed. The coincidence of mitral valve defects is generally in favour of a rheumatic origin for the aortic disease, but the presence of an Austin Flint presystolic murmur at the mitral area may lead to difficulty. Clinical or radiological evidence of enlargement of the left auricle suggests mitral disease, as may right ventricular preponderance and increase in the amplitude and duration of the P-waves in the electrocardiogram.

MYOCARDIAL LESIONS

The frequency with which syphilis attacks the myocardium is much in dispute. On clinical grounds the diagnosis of syphilitic myocarditis has always proved difficult, and certain pathologists claim that it occurs with much greater frequency than would appear from observations in the wards. Warthin[5] in particular emphasised its great frequency. He found what he considered to be evidence of syphilitic myocarditis, sometimes slight, sometimes great, in every male patient with latent syphilis. In females the incidence was much less. Warthin described microscopic features which he considered pathognomonic of syphilitic myocarditis, and in many cases was able to demonstrate the presence of spirochætes. His views, therefore, cannot be dismissed lightly.

---

* A paper read before the Liverpool Medical Institution, March 16th, 1933.

Unfortunately, however, other investigators have been unable to confirm his observations.

Clawson and Bell,[6] for example, after examining 126 cases of syphilitic aortitis, found that the myocardial changes were such that in most cases they could be accounted for by a mild non-specific coronary disease. Again, Martland [7] states that specific lesions of the myocardium and of the coronary arteries beyond the aortic wall are infrequent and usually so slight as to be unimportant. In spite of these conflicting statements, the majority of workers would agree that myocardial involvement is by no means rare in cardiovascular syphilis. Such involvement might be brought about by direct invasion of the myocardium with the *Spirochæta pallida* or its toxins, at a stage of the disease which will be discussed subsequently, or it might be due to specific changes in the coronary arteries due to extension from a syphilitic aorta. Coronary disease of this kind would inevitably impair the blood-supply to the myocardium.

In establishing a diagnosis of syphilitic myocarditis no single physical sign must be given undue prominence. This platitude deserves emphasis in all types of myocardial lesion. Some authorities consider that idiopathic hypertrophy of the heart (Carter and Baker [8]; Martland [7]) is suggestive of a syphilitic origin, and most would agree that when the hypertrophy is found without valvular disease, arterial hypertension, or arterio-sclerosis, syphilis should be considered seriously as the cause. Especially is this the case in middle-aged persons in whom a rheumatic origin is unlikely. In a series of 232 cases of syphilis examined by Chamberlain and Follows, 11 were found by palpation and percussion to have cardiac hypertrophy with no other abnormal signs, and several of these were young persons.

The symptomatology of syphilitic myocarditis is not pathognomonic; breathlessness, palpitations, precordial pain, and other features being common to all types of myocardial lesions. Some have stressed the occurrence of breathlessness and pain at night, but I have been unable to satisfy myself that this is a genuine point of difference between syphilitic and other heart lesions. On the other hand, certain negative features may prove of value in distinguishing syphilitic from other forms of myocardial lesion. Auricular fibrillation or other irregularities rarely occur as a result of syphilis. Coronary infarction is more frequently associated with arterio-sclerotic than with syphilitic changes in the coronary arteries, and its occurrence is against a diagnosis of syphilis.

The Wassermann test is, of course, most necessary and very valuable if allowance is made for the high incidence of a positive reaction amongst a population who may develop heart disease of non-specific origin. Moreover, true cases of cardiovascular syphilis undoubtedly occur with a negative Wassermann reaction. In the latter group, a provocative dose of neokharsivan may produce a conclusive response.

Finally, the electrocardiograph may assist in the diagnosis of myocarditis, but does *not* (as stated by some workers) give any clue to the syphilitic nature of the disease. The electrocardiogram may reveal unsuspected myocardial disease by the presence of abnormal T-waves, bundle-branch block, and delayed conductivity in the bundle of His. In the 232 cases examined by Chamberlain and Follows, of whom 221 were electrocardiographed, gross electrocardiographic defects were found in six cases, and minor but suspicious defects in a further seven. These results included cases of T-wave negativity and partial bundle-branch block, and with a few exceptions there was no clinical evidence of cardiovascular disease. Clinical defects without electrocardiographic abnormality were present in the 11 cases of cardiac hypertrophy previously mentioned, and in three cases of aortic regurgitation, two of whom showed a normal electrocardiogram. The results of the investigation emphasise the importance of combined clinical and electrocardiographic examination in investigations of this type.

STAGE OF INVASION IN CARDIAC SYPHILIS

The view of Warthin, that the spirochæte invades the myocardium and aorta during the stage of bacteræmia—i.e., in the secondary stage of syphilis—would lead one to expect changes in the heart and aorta in this phase of the disease, for the spirochæte is capable of producing an intense reaction in the tissues it invades. Yet the number of recorded cases of cardiovascular disease in the secondary stage is small, and many authorities cast doubt upon them.

The general consensus of opinion supports the view that after the secondary stage the spirochæte lies latent in the body for 15–25 years before attacking the cardiovascular and other tissues. In this dormant period little is known of its activities, but there is much to suggest that its resting place is in the mediastinal glands, from which at a favourable time it may gain ready access to the heart and aorta. This "lymphogenous" theory was convincingly put forward by Carey Coombs [9] and was based on the observations of Klotz,[10] Martland,[7] and others.

Whilst common experience dictates that heart disease does not occur until 15–25 years after the primary syphilitic infection, there are undoubtedly many cases which arise within a shorter interval. The recognition of these is of great importance, for in younger persons their course may be more rapid but more amenable to treatment. For their detection all methods of examination—clinical, electrocardiographic, and radiological—may be necessary.

COURSE AND TREATMENT OF CARDIAC SYPHILIS

The outlook in clinically recognisable cardiovascular syphilis is unfavourable, most cases following a progressively downward course. Willius [11] found that the duration of cases of syphilitic aortitis and aortic regurgitation averaged 23 years from the occurrence of primary syphilis, aneurysm averaging 26 years. The greater part of this period would be occupied by the so-called "latent" period, in which no symptoms are manifest and in which the disease is usually undetectable. In some cases the electrocardiograph or X ray might demonstrate suspicious changes while the patient was still symptomless, and in this type of case a repetition of antisyphilitic treatment might stay the advance of the visceral changes.

Even when cardiovascular syphilis is clinically apparent, a course of suitable treatment may modify the gloomy prognosis. The work of Moore and Danglade [12] suggests that life may be prolonged from 9 to 69 months in aneurysm, and in aortic regurgitation from 32 to 65 months.

The manner in which death is brought about by cardiovascular syphilis is variable and presents few characteristic features. In aortic regurgitation death may occur from gradual congestive heart failure or suddenly from defective filling of the coronary vessels. Syphilitic heart disease as a cause of sudden death is emphasised on clinical grounds by Martland[7] and on pathological grounds by Warthin.[13] The latter states that "it occurred five times more frequently in syphilitic than in non-syphilitic autopsies."

The treatment of cardiovascular syphilis has always been a vexed problem. Some have advocated heroic antisyphilitic measures irrespective of the type and grade of the cardiac lesion; others have held with depressing fatalism that treatment has no effect whatsoever. Even of the time-honoured administration of iodides a German cynic writes:

> "Wenn mann nicht weiss wo, wann, warum
> Denn gibt man Iodkalium."

The indiscriminate treatment of all cases of cardiac syphilis, especially with arsenicals, cannot be too strongly condemned. It is well known that an aggravation of local symptoms, called the Herxheimer reaction, may take place after intensive administration of antisyphilitic remedies, especially arsenic preparations, but may be prevented by careful alternation between heavy metals—i.e., mercury or bismuth, and arsenicals. Similarly a therapeutic paradox has been described by Wile[14] relating specially to the cardiovascular system. In this there is a remarkable improvement in the patient's general condition after the administration of arsenicals, shortly followed by aggravation of the local cardiac symptoms. The explanation of this phenomenon is uncertain, but it has been suggested that the syphilitic products may be too rapidly replaced by scar tissue, or that their disintegration produces chemical substances with a deleterious influence on the local lesion. If accidents in therapy are to be eliminated cases must be selected with care, and treatment must be cautious.

With these reservations there is every reason to believe that treatment may be of value not only in relief of symptoms but in the prolongation of life. In choosing suitable cases, one of the guiding principles should be the state of the cardiac reserve. Cases of decompensation with œdema, enlarged liver, or other congestive signs require restoration of compensation by the usual remedies, such as digitalis and rest, before any antispecific treatment can be carried out with safety. When compensation is good or has been restored by treatment, the patient may commence antisyphilitic measures. A good rule is to begin with iodides and mercury or bismuth, and note the response before using arsenic. Treatment with iodides and the heavy metals may be continued for 6–12 weeks before any arsenic is given.

Although it is difficult, without a large number of cases, to compare the effects of one drug with another, I have gained the general impression that bismuth gives better results than mercury in cardiovascular syphilis, especially when pain is a prominent symptom. It may be given in initial doses of 0·1 g., usually contained in 0·5 c.cm. of one of the suspended preparations, such as Bismostab, and the dose increased to 0·2 g. after three or four weeks. Six to eight weekly injections should be given. If the patient shows sufficient response to these lines of treatment, small doses of arsenic may next be given. Various preparations are recommended. Kharsulphan and Neokharsivan are reliable preparations, but should be given in small initial doses, say of 0·1 g., and gradually increased over a course of ten to twelve weeks. American workers recommend Neoarsphenamine or Bismarsen in similar doses.

In aortitis the same principles may be adopted—viz., preliminary iodides and a heavy metal, followed by cautious arsenic administration, but here the preparation of most value appears to be Tryparsamide, given in doses of 0·5 g. increasing to 1·0 g.

Adverse symptoms such as the Herxheimer reaction and Wile's therapeutic paradox are indications for the discontinuance of arsenicals and reliance must then be placed on careful use of bismuth and iodides. It is still uncertain whether specific measures prevent the progress of early syphilitic lesions such as aortitis and myocarditis, but as there is some evidence in favour of this it seems only right that the patient should have the benefit of full treatment, repeated at necessary intervals. When gross structural changes have occurred, as in aneurysm or grave aortic incompetence, the most that can be hoped for is arrest in the progress of the disease and relief of symptoms, and these cases above all require careful handling, usually responding better to iodides and bismuth than to arsenicals.

If there is a probability of gummatous collections in the heart, involving, for example, the bundle of His or its branches, fuller doses of iodides—grs. 60–120 daily—may be worth a trial. It is well known that large doses of iodides are also of value in relieving the pain of syphilitic aortitis and aneurysm.

Arsenicals should be prohibited in advanced cases of aortic disease and aneurysm, and in patients showing evidence of serious coronary disease generally detected by electrocardiographic means. Bismuth, mercury, and iodides are rarely dangerous, but even they require gentle administration, and should be discontinued if the results are obviously adverse.

In conclusion, I should like to express my thanks to Dr. A. A. Fitch and Dr. A. O. F. Ross, who have given me free access to their clinics and much valuable help.

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DEVELOPMENTS AT HARROGATE.—On Saturday, June 17th, Lord Horder opened the new sun colonnade which is the latest amenity at Harrogate. Speaking of British health resorts in general, he said that "we are only now beginning to appreciate the possibilities offered by the medicinal waters of our own country," but "in the matter of spa treatment, at any rate, the facilities at our disposal are as good in Great Britain as they are abroad." Given the energetic and intelligent coöperation of the doctors, the municipal authorities, and the town, he said, there was no reason whatever why British spas should not be as successful and as popular as their continental rivals. But success here, as in all other matters, presupposed courage, foresight, and intelligence. The people of Harrogate had been wise, he thought, in their latest attempt to bring the human gifts of design and adaptation to bear upon natural beauty, and the new promenade was only the first part of a large and necessary scheme to improve the facilities offered. The colonnade or sun walk is 600 feet long, is roofed with vita glass, and broadens into bays at two points, terminating in a café and concert hall. The next part of the scheme is the erection of a new pump-room, whose eventual cost will be £60,000.

RADIATION TREATMENT OF CANCER OF THE MOUTH AND PHARYNX*

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(WITH COLOURED PLATE)

At the outset it must be made clear that radiation is *not to be regarded* as a method in opposition to the older established surgical procedures—it may be the essence of modern treatment but not to the exclusion of certain operative procedures, be these only accessory for drainage and approach or major operations for the removal of residual growths or lymphatic glands. It is also necessary to note that some of the failures in radium therapy need not be blamed on the agent itself but on the operator who fails to take advantage of up-to-date methods, who uses radium very occasionally, who has only a vague idea of dosage, intensity, and biological effects, and to whom the natural history of the disease is a closed book.

Radiosensitivity in Relation to Histological Structures

Until the clinician can define dosage in units of radiation energy delivered within the tumour, the term "radiosensitivity" remains indefinite and is only an expression of comparative values. Different histological types require different tissue doses to produce retrogression and disappearance of the tumour. From a study of the various publications of Martin and Quimby,[1 2 12] Cutler,[3 4] Regaud,[5] Ewing,[6 7] Broders,[8] and Phillips,[11] it is possible to classify the various types in the following three main groups [9]: (1) squamous-celled carcinoma with cell nests, (2) transitional cell carcinoma without *cell nests, (3) lympho-carcinoma.*

From a study of my own cases and the correlation of results obtained from various methods of irradiation I have arrived at the following conclusions, some of which confirm observations made by other workers:—

1. Histologically similar tumours present wide differences in their response to radiation—there must therefore be other factors besides actual structure as seen under the microscope which affect the response of tumour cells to radiation.
2. The condition of the stroma is as important as that of the nature of the cells.
3. Anatomical situation has a definite relation to radiosensitivity, irrespective of histological structure.
4. Radiosensitivity bears a direct relation to the local lymphatic and blood-supply; this has been experimentally confirmed by *Mottram*[33] *and others.*
5. Sepsis increases radio-resistance.
6. Anæmia, other factors being equal, increases radio-resistance.

From these conclusions it follows that the choice of treatment depends upon (1) the site and extent of the disease, (2) the type of lesion, (3) the general condition of the stroma or tumour bed, (4) the general condition of the patient.

It is now an accepted fact, which is borne out by the statistical survey of cases (see below), that in cancer of the mouth and pharynx radiation has proved of value, and that surgical excision no longer represents either the sole legitimate treatment or even the first treatment to be adopted.

Lesions in Various Sites

I propose to deal separately with lesions of the tongue, the cervical lymphatic area, the oropharynx, hypopharynx, and the maxillary antrum.

TONGUE

It matters little, perhaps, in the very early case, where the growth is in the *anterior part* of the tongue, whether local excision be employed or irradiation. The operative procedure is a minor one, function is not greatly interfered with, and the ultimate results, as far as the tongue is concerned, offer about an equal chance of local recurrence. This does not mean in any way that early lesions of the tongue do not respond to irradiation—they do—and the earlier the case the better the ultimate prognosis.

Lane-Claypon,[13] in the Ministry of Health report on cancer of the tongue (1930), states that from the massed material collected by her it appears that 20–25 per cent. of all patients operated upon are alive three years from operation, as compared to 37·8 per cent. of three years survival after radium treatment. It will be shown that by more modern methods in operable cases this survival-rate reaches a much higher figure (*59·1 per cent. in Berven's* cases [13]). It can therefore be said that surgery presents a fair claim in the treatment of early operable cases of the anterior part of the tongue. I would go further and say that it is much better for the patient to submit to competent surgery than to incompetent radiation, and that a proper radium treatment requires infinitely more care, skill, and specialised knowledge than that possessed by the average surgeon occasionally using radium.

When the disease is situated behind the circumvalate papillæ, in the *posterior part* of the tongue, it is for all practical purposes beyond surgical help; here the choice must of necessity fall upon radiation as the first and best method of treatment, and the reasons for this preference are threefold: (1) the disease is not accessible to excision without grave risks to the patient; (2) the malignancy of tumours of the posterior group is of a very high order; (3) dissemination is early and widespread—it is therefore beyond the scope of excision. The results by radiation, however, are good, and many cases which appear hopeless to the excisional surgeon survive periods of three, five, and eight years following irradiation.

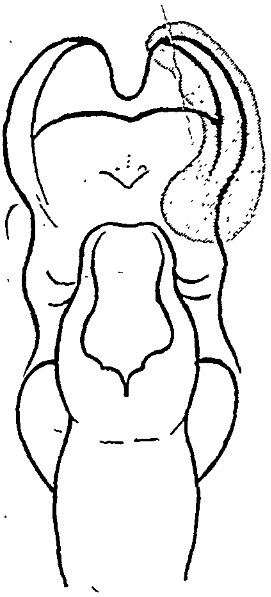

FIG. 1.—Diagram showing extent of lesion as visualised from behind.

The *palate, buccal mucosa,* and *floor of the mouth* present a problem less complex. Irradiation can be carried out with comparative ease, and the immediate results are at least as good as those of surgery in operable cases and greatly superior in inoperable cases.

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* A Hunterian lecture delivered at the Royal College of Surgeons of England on Feb. 8th, 1933.

CASE 22.—Male, aged 50 years, under the care of Mr. William Turner at Westminster Hospital. Epithelioma of buccal mucosa near the angle of the mouth: no palpable cervical glands. Interstitial irradiation by means of eight needles of 0·6 mg. of radium element (R.E.) each, left in position seven days, followed by surface application on wax for three days. Total dose 1200 mg. hours. Complete disappearance of growth. Well five years.

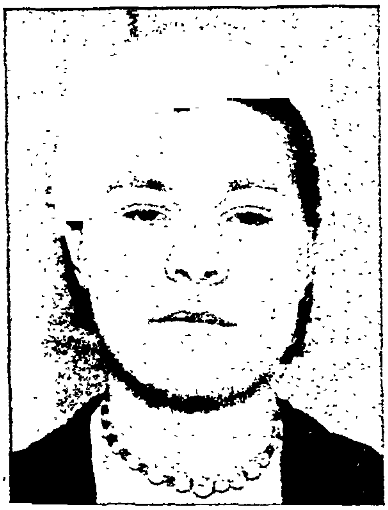


FIG. 2.—Advanced sarcoma of left upper jaw, two years after treatment. No evidence of disease.

CASE 535.—Male, aged 66 years, under the care of Sir Cuthbert Wallace at Mount Vernon Hospital. Extensive and inoperable epithelioma of the right cheek which had involved the jaw, perforated through the skin, and formed numerous sinuses. Histology: squamous-celled carcinoma. Treated by interstitial irradiation in two stages. First the inside of the cheek was needled by ten needles at 0·6 mg. R.E. each and four needles at 1 mg. R.E. each. Total dose in seven days 1680 mg., followed by immediate needling of the skin of the face by ten needles at 2 mg. R.E. each and nine needles at 1 mg. each. Total in seven days 4704 mg. hours. By this method the tumour was irradiated from both aspects during 14 days. Total in 14 days 6384 mg. hours. Healing was slow, but by the end of the fifth month after treatment the whole ulcer, both inside the mouth and on the face, had completely cicatrised and the sinuses had healed. Well to date, two years.

CERVICAL LYMPHATIC AREA

From the very advent of radium treatment of oral and pharyngeal cancer it was obvious that the real difficulty was the prevention of cervical metastases and the treatment of the lymphatic area. From a critical study of the after-histories of patients treated by radium and after discussion of this question with Lacassagne, Quick, and Berven I believe that it can be accepted as axiomatic that treatment of the cervical area is imperative even when the neck appears entirely normal and the lesion in the mouth a very early one. To leave the neck untreated and to await developments is to court disaster; the time at which metastases appear cannot be either assessed or predicted. No matter how great one's clinical experience it is impossible to dogmatise on the state of the glands by clinical examination alone in early cases. It is therefore imperative to treat the cervical area. Sir Cuthbert Wallace [15] in his statistical report on the work of Mount Vernon Hospital, issued in May, 1932, presents our routine treatment [9] for the past five years:—

(1) If no glands are palpable, surface irradiation is employed.

(2) (*a*) If the glands are palpable but operable, and if the condition of the patient is good and there has been a good local response, they are removed by a block section. (*b*) If removal of glands is not advisable, open or closed needling is employed.

(3) If the glands are inoperable they are given the primary treatment by deep therapy, followed either by needling or surface radiation by radium.

This crystallises to-day's position as regards choice of treatment of the cervical glands.

OROPHARYNX

In this situation the choice of treatment unquestionably falls upon radiation. The work of Harmer [16] (Semon lecture of 1931), of James Duffy [17] (Memorial Hospital, New York, 122 cases of carcinoma of the tonsil), and of Berven,[18] leaves no room for doubt that radiation is the method of treatment *par excellence* in this group of pharyngeal tumours. My own observations [14] have fully confirmed these views. Tonsillar tumours are highly malignant, very radiosensitive, and disappearance of the primary lesion occurs in about 90 per cent. of cases if adequately irradiated.

CASE 47.—Male, aged 55 years, epithelioma of left tonsillar area and both pillars of fauces, with extensive involvement of lateral pharyngeal wall. Treated at Westminster Hospital in 1928 by implantation of 16 radon seeds, 1·2 mc. each, screened by ½ mm. of platinum. Complete retrogression of the disease. Two months later block dissection of the left side of the neck. Histological section showed a deposit of squamous-celled carcinoma in one of the glands. Small local recurrence in region of posterior pillar, treated with diathermy a few months later. Well to date. Free from disease, five years.

CASE 463.—Male, aged 54 years. Heavy drinker. Extensive epithelioma of the ulcerative and nodular type occupying the right tonsillar fossa, lateral pharyngeal wall, and involving the tongue (Fig. 1). Hard fixed mass of glands in the neck. Treated at Mount Vernon Hospital. Interstitial irradiation of primary lesion by seven needles of 1 mg. R.E. each, screened by 0·8 mm. of platinum. Total in seven days 1076 mg. hours. Three weeks later one large cervical gland, the size of an egg, excised, and neck needled by the open method: seven needles of 2 mg. R.E. each for seven days. Total 3652 mg. hours. The gland was shown on histological examination to be filled with large alveoli of undifferentiated carcinoma cells, showing great variation in their morphology. A full course of deep X ray therapy was given six week after the open needling. The result is complete disappearance of both primary lesion and metastasis and no evidence of disease to date, two years three months.

HYPOPHARYNX

The hypopharynx presents a grave problem. In the words of Trotter [19]: "For the surgeon the pharynx combines three of the most formidable obstacles to the exercise of his art, it is inaccessible in a high degree, it is the seat of delicate and concentrated function, and it contains septic material to which the surrounding tissues are in no way immune."

It is therefore to the everlasting credit of Wilfred Trotter [19 20 21 22] that in face of these difficulties he evolved a method of surgical treatment, *the lateral transthyroid pharyngotomy*, which for the past 20 years has remained as the sole surgical measure of relief in these cases. Given suitably selected cases and a surgical technique of the highest order, the extirpation of the pharyngeal neoplasms is possible and has given brilliant results. But the operable cases are few and the successful issue of surgery is not in the hands of many. There remains therefore a large group of hypopharyngeal cancer where radiological methods offer the only hope either of palliation or of cure.

CASE 49.—Male, aged 64 years. Carcinoma of lateral pharyngeal wall with extension upwards to epiglottis. Histology: squamous-celled carcinoma. Treated at Westminster Hospital in 1928. Modified lateral pharyngotomy for access only. Insertion of 15 mg. of radium in eight needles; left in position seven days. Two months later surface irradiation of neck by means of a Colombia paste collar. Complete healing of lesion. Well to date, five years.

MAXILLARY ANTRUM

Tumours in this situation can be either sarcomata or carcinomata. Surgical treatment, as reviewed in literature, shows only a small percentage of five-year survivals. There can be no question that surgical treatment by complete removal of upper jaw leaves a great deal to be desired. Radiation treatment, if adequate, gives gratifying results. If radiation is decided upon, the method depends upon the histological structure. A biopsy in such cases is therefore of primary importance. If the tumour be a sarcoma the choice of treatment should be high-voltage X rays without any surgical intervention. The results from X rays are unequalled by any other form of treatment—providing both the X ray machine and the man behind it are equal to the task. It leaves the patient with no external deformity and no functional disability. Symptoms disappear rapidly, hæmorrhage is arrested, and the eye, if proptosed rapidly, returns to the normal position. If the tumour of the antrum is a carcinoma preliminary X rays must be followed by radium treatment.

CASE 664.—Female, aged 17 years, admitted to Westminster Hospital in a state of advanced cachexia and a history of intermittent severe bleeding from the nose for the previous six months. The blood count showed two million red blood-cells and 28 per cent. hæmoglobin. There was a swelling of the left side of the face; a vascular tumour was protruding from the left nostril, the left eye was proptosed; left antrum opaque in a skiagram. Biopsy from the part of the tumour protruding from the nose showed a round-celled sarcoma. After two blood transfusions and iron and liver extract medication, a full course of high-voltage X rays was given by my colleague Dr. F. M. Allchin. There was a rapid response to treatment. Hæmorrhage stopped at once: the swelling of the face and the proptosis rapidly diminished. At present there is no evidence of disease clinically or radiologically. Well two years (Fig. 2).

CASE 794.—Female, aged 17 years. Advanced case of sarcoma of left upper jaw; proptosis, fixation of eye, swelling of glands on left side of neck. Biopsy of glands, sarcoma. Full course of X rays by Dr. Allchin, with rapid disappearance of all external deformity. This, however, was only temporary and local recurrence took place within six months; this again responded to treatment. But the patient succumbed from bony and visceral metastasis.

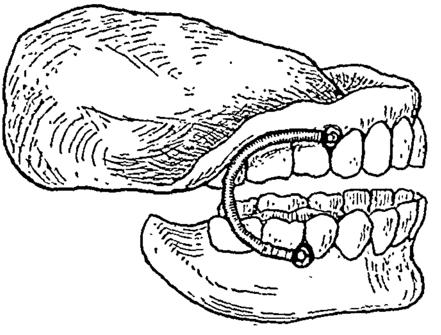


FIG. 3.—Dental plate with obturator after fenestration of palate.

CASE 862.—Female, aged 15 years, under the care of Dr. Allchin. Histologically proved spindle-celled sarcoma of left upper jaw, with definite proptosis. Treated by high-voltage X rays as the sole method of treatment. Complete disappearance of tumour and deformity. Well to date, one year.

Although I have formed the opinion that sarcoma of the upper jaw is preferably treated with X radiation, we have tried the effect of radium on these cases and the response to treatment justified its use in selected cases.

CASE 191.—Male, aged 47 years, under the care of Mr. Gilbert Chubb at Westminster Hospital in 1929. Histologically proved sarcoma of left upper jaw, ethmoid, and frontal sinus, with large polypoid mass in left nostril, involvement of orbit and proptosis. When first seen the patient was drowsy and intracranial extension was suspected. The case was considered quite hopeless from the beginning. After a preliminary treatment with the 1 g. unit, interstitial irradiation was carried out, seven needles at 2 mg. R.E. each being inserted. There was rapid retrogression of the disease and a surprising improvement in the general health of the patient. The improvement, however, was only temporary, and intracranial extension of the disease killed the patient seven months later.

Surgical Approach to the Antrum

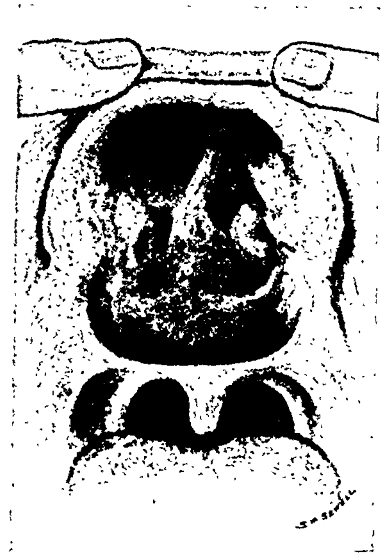


FIG. 4.—Fenestration of palate for extensive neoplasm of antrum, condition four years after treatment. Both openings of Eustachian tubes seen; cavity obliterated by plate (see Fig. 3). Speech normal.

In antral carcinoma it is difficult to estimate the extent of the disease; it is therefore important to expose the growth surgically. It is possible to do so from the face, through the canine fossa, through the nose, or through the palate. It is the last-named method which appears to be the one of choice. It has been selected as the best method of approach by Douglas Harmer[16] in this country and Douglas Quick[23, 24, 25, 26] in America, and has been used for over ten years, although it does not appear to be widely known.

The object of the operation is to provide access to the growth (1) for irradiation by radium, (2) for purpose of drainage, (3) to provide a permanent inspection window so that possible remnants of growth or recurrences can be easily seen at their very inception. The operation is carried out with the diathermy needle under general anæsthesia. It is not necessary to interfere with the soft palate, and this and the uvula are preserved even in advanced cases when the posterior or pharyngeal aspect of the antrum is involved. Access having been obtained to the lesion, as much of the growth as possible is removed by means of a diathermy loop, extensions into the ethmoidal and sphenoidal areas being particularly looked for. Irradiation is carried out in two stages. The first stage consists in the immediate insertion of a large quantity of radium kept in position continuously for 24 hours. The quantity of radium used depends upon the volume of the cavity.[26] For the first stage of radiation, as the period of treatment is brief (24 hours), a high intensity is required. The average we use is 30–40 mg. of radium in tubes of 10 mg., filtered by 1 mm. of platinum. Ten days after operation the second stage of irradiation is proceeded with, a plaster cast of the cavity is taken and a hollow model is made consisting of two separate layers of shellac.

Radium in small needles is placed in between the two models which are then sealed. To facilitate the introduction and removal of the apparatus it is made in two sections. A dental plate incorporating 1 mm. of lead completes the apparatus; this is worn by the patient ten hours a day or more in periods of two hours. The treatment is continued till the cavity is covered with a thin fibrinous layer. Residual small sequestra and crusts are removed from time to time till the cavity is entirely epithelialised. A permanent denture with a suitable obturator is then made.

CASE 143.—Female, aged 64 years. Extensive tumour of right upper jaw, with marked facial deformity, bulging of palate, and a soft swelling in the canine fossa; left nostril filled with growth. Biopsy through nose showed the tumour to be an *endothelioma*. Large fenestration of palate exposing solid growth within. Mass removed with diathermy. Interstitial irradiation in two stages: (1) four tubes at 10 mg. for 96 hours—total 3840 mg. hours: (2) shellac plate carrying 4·8 mg. of radium 24 hours daily for 13 days, 1497 mg. hours—total 5337 mg. hours. Later fitted with denture (Fig. 3). Functional result as regards speech is very good. No symptoms and no evidence of disease. Well to date, four years (Fig. 4).

Surgical Approach to the Pharynx

For successful radium therapy of pharyngeal growths by the interstitial method it is essential that access to the growth should be made in such a way as to interfere in the least possible way with the blood-supply and lymphatic drainage of the pharynx. Asepsis is of the utmost importance, and the occurrence of infection during or after radiation has in this situation disastrous consequences. Further, if complete arrest of the disease is to be hoped for, the whole tumour as well as the surrounding healthy tissue must be submitted to radiation of very high intensity. After scrupulous toilet of the mouth and extraction of teeth preliminary X ray treatment is given; this is followed by an endoscopic examination and a biopsy. The extent and accurate position of the growth having been ascertained as far as possible, the pharynx is exposed by a *single oblique* incision which is placed over the middle of the infra-hyoid muscles; careful hæmostasis is essential. The ala of the thyroid cartilage and the greater cornu of the hyoid, and a portion of cricoid, are removed with care, avoiding opening the pharynx or larynx. Radium needles of suitable length, screenage, and linear intensity are then placed in contact with the outer wall of the pharynx and retained in position by fine catgut sutures. The wound is closed without drainage. Tracheotomy is not essential although advisable in those cases where the growth encroaches grossly on the arytenoids. At the end of a week the wound is reopened, the needles removed, and the skin incision only partially closed.

CASE 982.—Male, aged 49 years, under the care of Sir Milsom Rees. Squamous-celled carcinoma of epiglottis. Twelve months' history. Small indefinite glands. Preoperative X ray therapy (one-third of a full dose) by Dr. Allchin, followed by dissection of neck for removal of a small gland, ala of thyroid cartilage, and cornu of hyoid. Insertion of 18 mg. of radium in long needles along the side of the pharynx for five days. No tracheotomy. Total dose 2160 mg. hours. I operated upon this patient by courtesy of Mr. Douglas Harmer who one month later on examination found the growth entirely disappeared. Well to date, one year six months.

Methods of Increasing Radiosensitivity

Surgery, X rays, and radium have more often than not been used as the sole method of treatment; if however one method fails, another is attempted, and it sometimes happens that radium failures subsequently become X ray successes and vice versa.

Instances of X ray failures which responded to radium therapy have also occurred in my own cases. It was noted at an early date that there were therefore definite advantages in combining X rays and radium; this combination is, of course, a recognised method of treatment of uterine cancer. The advantages of the combined method are twofold: (1) a greatly increased tissue dose can be given, greater than that by either method alone even to the extent of increasing the total dosage by 50 per cent.; (2) it appears that radiation of different wave-lengths increases the total radiosensitivity of a tumour. This can be applied in several ways. A preliminary X ray treatment enhances the effect of interstitial irradiation; X rays given at periodical intervals after a full radium treatment appear to increase the permanency of results. Finally, simultaneous X ray and radium therapy sometimes produce a dramatic resolution of tumours which did not respond to either of the methods separately. Sensitivity to radiation is at least to a certain degree dependent upon the structure of the cell, and by submitting the cells to the effect of different wave-lengths it is possible to break down their resistance. The time relation of the two types of radiation is important and the shorter the interval the greater the sensitisation.

Methods of Radium Treatment

The methods of irradiation of the maxilla and the interstitial method of treatment in the pharyngeal growths have already been referred to. Needling of the tongue is so well known that the description of the technique would be out of place in this lecture; it has not varied greatly since the publication of a joint paper with Mr. Arthur Evans[27] five years ago. It may, however, be of value to enumerate certain cardinal principles, not all of which are fully appreciated or universally accepted. These principles are as follows:—

1. Uniform irradiation of uniform intensity throughout the period of treatment is desirable (hence my preference of radium to radon).

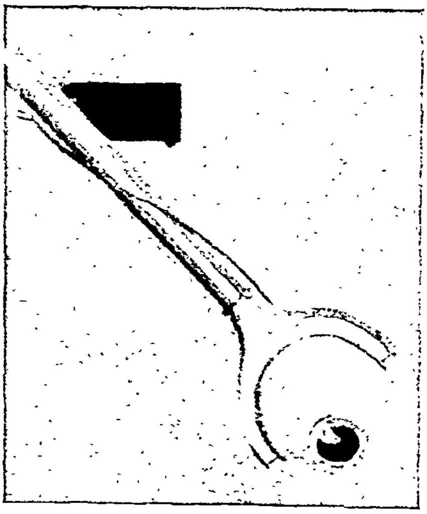


FIG. 5.—" Bomb " model No. 4. Westminster Hospital.

2. Maximum filtration[28] is the optimum filtration. Filtration is the key both to safety and efficiency. It enables the clinician to place the radium needles in close proximity to radiosensitive tissues (cartilage, bone) without risk of necrosis; it controls the factor time and hence the total dose. The very essence of interstitial radiation therapy hinges on filtration.

CASE 505.—Male, aged 66 years. Eight years previously, Whitehead's hemiglossectomy for carcinoma of the tongue. Well for seven years then developed recurrence, involving floor of mouth, lip, chin, and jaw forming a tumour the size of an orange. Interstitial irradiation at Mount Vernon Hospital. 78 mg. of radium in 36 needles, screened with 0·8 mm. of platinum, were inserted and left in position for 216 hours (nine days). Total dose 16,988 mg. hours; relatively an enormous dose. *No necrosis* of bone followed; the tumour disappeared entirely. Patient remained well for one and a half years, when he developed a cystic swelling of the ascending ramus of the lower jaw for which further treatment was given with further relief for 12 months, when widespread recurrence took place.

3. Interstitial irradiation must cover a field considerably wider than the visible and palpable growth. The tumour bed and a fair margin of apparently healthy tissue must be irradiated if the incidence of local recurrences is to be diminished. As regards surface irradiation by means of collars we have adhered to the technique originally adopted at Westminster Hospital [27]—namely, a 15 mm. radium-skin distance, relatively small doses of radium e.g., 40 to 60 mg. for irradiation of a neck, treatment prolonged over two to three weeks. The modifications introduced consisted (1) in applying to clinical use the important observation on tissue culture which enabled Spear [31] to demonstrate the beneficial effects of the "split-dose," so that instead of a continuous irradiation of 14–18 hours daily short treatments now alternate with periods of rest; (2) in increasing the screenage by additional filters of metals of medium atomic weight (copper, brass, zinc) placed halfway between radium and skin as advocated by Sven Benner.[32]

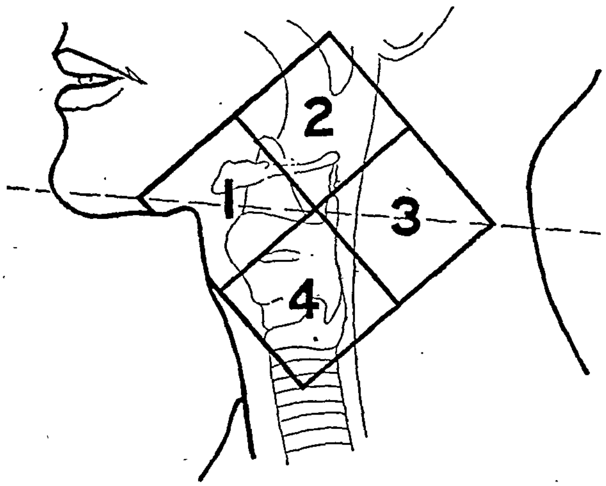


FIG. 6.—Diagram illustrating disposition of the four ports of entry for treatment of the tonsillar area and lateral pharyngeal wall.

Mass Radiation

The greatest advance in radium therapy of the mouth and pharynx lies, however, in the development of mass radiation. This method is in the process of development, but the immediate results obtained in the mouth and pharynx surpass anything that has so far been achieved in radium therapy. This method attempts to deliver a maximum intensity in the depth with the least inconvenience to the patient and the least damage to the skin. Large quantities of radium are required.

To understand the idea underlying mass radiation it is necessary to remember the rapid fall of intensity which occurs at short distances from the source. To deliver a therapeutic dose in the mouth or pharynx without burning the skin or mucosa, the container must be so constructed that at a reasonable distance from the skin, sufficient to prevent burns, there is still a depth-dose capable of influencing the lesion. The criteria necessary in the construction of such an apparatus for use in lesions of the mouth and pharynx are the following: The apparatus must be small, mobile, easily manipulated, fully protected, rigid when once fixed to the patient; the opening through which the rays emerge must be sufficiently small to enable numerous ports of entry to be used; a quantity of radium of at least 2 g., but preferably 4, 6, or more g. must be available. Extreme accuracy of treatment is essential; intimate coöperation between physicist and clinician is a sine qua non. Finally a unit of measurement must be used which makes it possible to compare tissue doses received from different distances. The container used at Westminster Hospital has been constructed with this aim in view (Fig. 5); it is incidentally the fourth machine built for the hospital. As knowledge increased modifications had to be introduced. The machine here described is already being superseded by a new one just constructed; this machine like the four previous ones has been built by Mr. Francis Carling, and I believe that the fifth model—incorporating the practical knowledge acquired in the use of the previous ones, designed with the help of all those intimately concerned in mass radiation—to be the most accurate, the most scientific, and the safest in existence in any clinic. In calculating the intensities at different distances in different planes it is convenient to make use of Sievert's unit. This is defined as follows:—

> The unit for gamma-ray intensity is the intensity which is found at a distance of 1 cm. from a radium preparation consisting of 1 g. radium element (pure radium sulphate) in equilibrium with its disintegration products, this source of radiation being in all directions filtered through 0·5 mm. of platinum, and the dimensions of the preparation being so small that the source might be considered a point.

By taking into account the quantity of radium in the unit, the screenage, and the distance, the intensity output of any given apparatus can be calculated. For all the physical data I am indebted to Mr. L. G. Grimmett, our assistant physicist at the Westminster Hospital Annexe. He calculated the different intensities at different depths and plotted out the distribution curves.

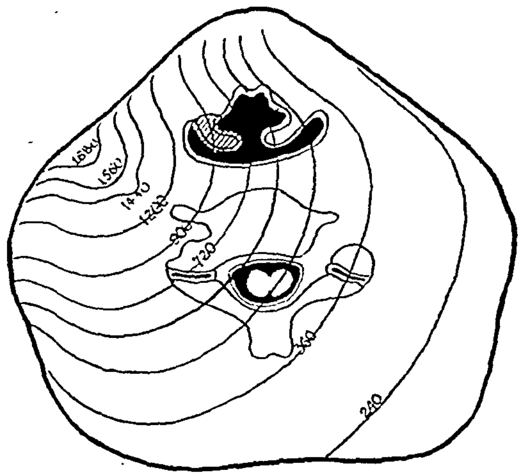


FIG. 7.—Diagram of tumour of pyriform fossa. Showing the intensity curves and the resultant dose from four ports of entry, in Grimmett's units.

For the treatment of a lesion in the region of the tonsil, lateral pharyngeal wall, and pyriform fossa, I have found it convenient to use three, four, six, or eight ports of entry according to the extent and position of the lesion, and the presence or absence of glandular involvement (Figs. 6 and 8). Grimmett calculated and plotted out the intensities through each separate port, and the total intensity of the combined ports is shown in Fig. 7. Dr. G. W. Phillips, the officer in charge of the bomb, made the observation that with this unit at a skin distance of 3 cm. it required six applications of one hour to produce an erythema and dry peeling and seven hours to produce a selective radio-dermatitis. Grimmett suggests, as a unit of dosage in clinical work, the dose given by an exposure of one hour to unit intensity. As the 2 g. bomb at a distance of 3 cm. delivers an intensity of about 200 Sievert's units on the skin, so that in one hour 200 units of dose are administered, and since the skin erythema is reached in approximately six hours under these conditions, it follows that an erythema dose in these units is 6×200=1200 units. When multiple ports are used, the total dose is obtained by working out the dose through each port of entry and adding the results (Fig. 7). I propose for simplicity's sake in this lecture to call this unit the Grimmett Unit of Dosage. With the help of Dr. Phillips and Mr. Grimmett we were able to deliver doses sufficient to cause complete retrogression of the disease, although the effect on the skin was at times severe owing to the fact that only 2 g. of radium were being used and the radium-skin distance had to be short.

Our method has been to give one hour's treatment to one port per day; occasionally two ports were irradiated in one day. All the ports were treated in rotation. Each port never exceeded a total of six hours. The total treatment, including occasional periods of rest, can be carried out in 16 to 18 days.

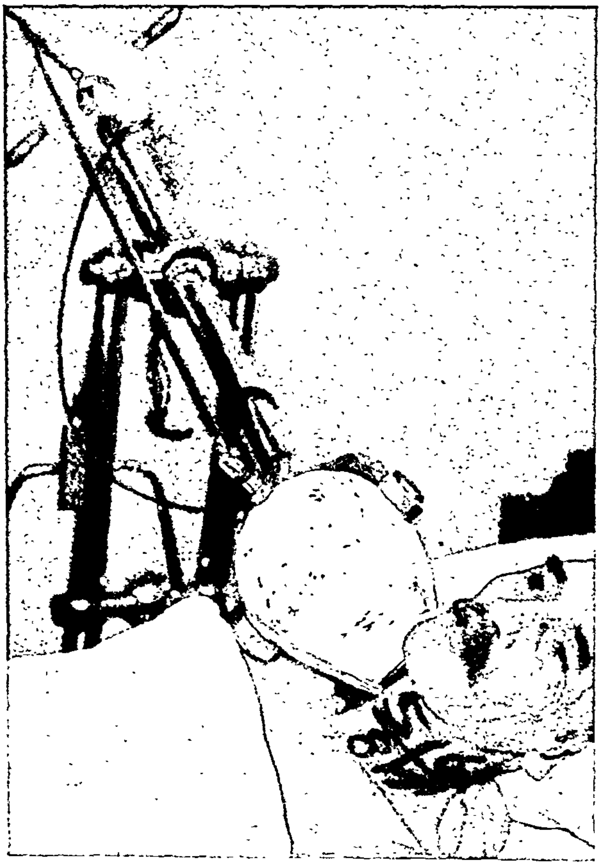


FIG. 8.—*Carcinoma of pyriform fossa. Eight ports of entry mapped out. 2 g. " bomb " in position.*

To illustrate the possibilities of this method and show the immediate results, I would like to quote at some length the following cases:—

CASE 859.—Female, aged 62 years. Carcinoma of pyriform fossa on the left side, under the care of Mr. Douglas Harmer at St. Bartholomew's Hospital. Treated by deep therapy by Dr. Walter Levitt with complete disappearance of lesion for two and a half years. Then a recurrence occurred in the aryepiglottic fold and lateral wall of the pharynx. This was treated by me by resection of the hyoid bone and thyroid cartilage, and insertion of 18 mg. of radium left in position three days only. Total dose 1536 mg. hours. The lesion healed but there was rapid extension forwards on the epiglottis. This, therefore, was a case which had been previously irradiated both by X rays and by interstitial radium, and in which the growth was rapidly progressing. From all points of view an unfavourable case. Treatment by the 2 g. bomb was then instituted. Four ports of entry were used, all on the left side of the neck; radium-skin distance 3½ cm., two treatments a day except the last two days when one hour a day only was given. In all, 18 days including periods of rest. A total of 24 hours' treatment was given (3840 Grimmett units). Reaction of skin to a degree of selective radio-dermatitis (Fig. 9 on Plate). In the mucosa some swelling and dryness; moderate discomfort for about a week or ten days after treatment. Complete healing of the lesion, although acute dermatitis of the skin followed the treatment (Fig. 11 on Plate).

CASE 933.—Female, aged 63 years. Carcinoma of the left pyriform fossa, under the care of my colleague Mr. F. C. Ormerod seven months previously. Treated by deep therapy X rays by Dr. Peter Kerley, with considerable improvement and healing of the ulceration. When seen by me there was a scar in the pyriform fossa, and active disease of the aryepiglottic fold and epiglottis, massive œdema entirely hiding the left cord. This case resembled the previous one in being a recurrence after X radiation and not a favourable one. Treatment by the 2 g. unit; radium-skin distance 3 cm., eight ports of entry (four on each side) two hours daily, with occasional periods of rest. In all, 13 hours on left side and six hours on right side spread over three weeks (2670 Grimmett units). Reaction moderate, peeling of skin and filming of lesion. The œdema rapidly disappeared and the lesion healed entirely (Fig. 10 on Plate).

CASE 936.—Male, aged 50 years. Epitheliomatous ulcer of left pyriform fossa extending to and involving the laryngeal surface of the epiglottis, hiding the vocal cord; arytenoid œdematous. Extensive malignant cervical glands from mastoid process to clavicle. After a preliminary treatment with X rays by Dr. Allchin (140 per cent. U.S.D.), the following mass radiation was given: 2 g. unit, radium-skin distance 3 cm., eight ports of entry (four on each side), dose not exceeding three hours to each port; two hours daily (Fig. 8). Total 22 hours spread over three weeks, with occasional periods of rest (3160 Grimmett units). Skin reaction very slight, only a dry scaling. Some dysphagia for a week. Rapid diminution of glandular mass till only one small gland at the level of the angle of the jaw is palpable. Lesion healed.

CASE 879.—Male, aged 62 years. Twelve months' history of discomfort in throat. Extensive new growth of left tonsil, involving anterior and posterior pillars of the fauces and tongue. Some fullness in the left side of the neck at the angle of jaw. Papillary type of carcinoma, with ulceration of lingual part of lesion. Treatment by mass radiation: 2 g. unit, three ports of entry, at first one hour a day then two hours daily. Total 18 hours spread over 15 days (2520 Grimmett units). Reaction of fibrinous type with only very slight skin changes. Complete healing of lesion (Fig. 12, a, b, c on Plate).

CASE 872.—Female, aged 53 years. Increasing dysphagia since January, 1932. Examined at a laryngological hospital and was found to have a hypopharyngeal neoplasm, shown on biopsy to be a squamous-celled carcinoma. No treatment given as the condition was considered to be hopeless. In April, 1932, the growth had fungated through the skin, and a fistula formed on the right side of the neck. When first seen at Westminster Hospital four months later there was complete pharyngeal obstruction; any attempt at swallowing water was followed by escape of fluid through the fistula in the neck. Complete starvation with extreme wasting (weight 5 stone). Enlarged cervical glands, clinically malignant. Gastrostomy performed and the growth examined. It was found to surround completely the hypopharynx. Treatment was given by mass radiation with extreme caution. Four ports of entry on right side of neck, 3 cm. radium-skin distance. Total 4338 Grimmett units. There was a well-marked reaction, with peeling of the skin. The lesion healed, the fistula closed, the swallowing improved till a normal meal can now be taken by the mouth. Weight increased by 2 stone (Fig. 13).

It is quite obvious to anyone conversant with radiation therapy that if this method by mass radiation is to be used effectively and with the greatest possible comfort, the radium-skin distance must be increased: this cannot be done without diminishing the tissue dose in the tumour unless a larger quantity of radium is employed. It is therefore reasonable to maintain that with larger quantities of radium properly applied in suitable containers, not only is the effect of irradiation increased but this improvement in results is accomplished with increased safety and comfort to the patient.

Berven[18] has used the method long enough to be able to compare the three-year results by the old method with the three-year results by the new method (3 g. mass). His comparison of results set out below (Table A) of the old method and the new method is sufficient testimony to the benefit which mass radiation has brought.

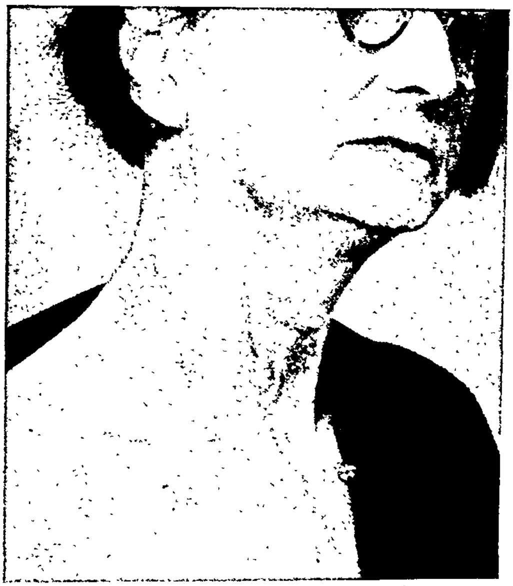


FIG. 13.—Postcricoid carcinoma with spontaneous fistula formation, right side of neck. Mass radiation with 2 g. bomb. Fistula healed. Increase in weight by two stone.

TABLE A.—*Carcinoma of Tonsil. Three-year results: Berven*

—	Primary healing.	Free from signs and symptoms for—		
		1 year or more.	2 years or more.	3 years or more.
	Per cent.			
OLD METHOD				
Carcinoma— Stage 1	50·0	16·7	0·0	0·0
„ 2	28·5	14·3	0·0	0·0
„ 3	13·3	6·7	0·0	0·0
Total ..	25·0	10·7	0·0	0·0
NEW METHOD				
Carcinoma— Stage 1	66·0	66·0	66·0	50·0
„ 2	100·0	100·0	50·0	50·0
„ 3	0·0	0·0	0·0	0·0
Total carcinoma ..	42·8	42·8	35·7	28·6
Lympho-epithelioma ..	100·0	75·0	75·0	75·0
Total carcinoma and lympho-epithelioma.	55·6	50·0	44·4	38·9

Statistical Survey of Results

In surveying the results of radiation treatment of cancer of the mouth and pharynx, I will confine myself to the statistics of my own cases. I will not attempt to compare figures of radiation treatment with those of surgical treatment. Such a comparison would in any case be fallacious, as surgical statistics refer only to operable cases—not a large group. I have treated without exception every case which presented itself, irrespective of the size or extent of the primary lesion or metastasis. I have not refused treatment even to patients with visceral metastasis. Only those patients who were obviously moribund or likely to die within a few days were not treated. In these circumstances statistics are not comparable with those of excision. The total number of cases of oral or pharyngeal cancer which I have treated and followed up is 337, quite an inadequate number for subdivision into operable, inoperable, and borderline subgroups, as each group would be too small for useful deductions. But such statistics as I present have one advantage: they show the end-results of a method of treatment of the disease as a whole in all stages. Finally, these statistical tables refer to a period of seven years which includes the very first cases and in which various methods were tried out.

The analysis of the tables shows that:

(*a*) Of a total of 337 patients, 113 (33·5 per cent.) are alive for periods varying from seven to one year.

(*b*) Tongue cases alone account for 225 cases, of which 75 (33·3 per cent.) are alive.

(*c*) The five years and six years survival figure is 18·7 per cent. (and the seven years figure 11 per cent.).

(*d*) For pyriform fossa carcinoma there were no survival-rates till new methods were applied.

TABLE I.—*Carcinoma of the Tongue: Survival-rates 1925–1932*

Year.	Total cases.	Alive. No. and per cent.	Years of survival.	Year.	Total cases.	Alive. No. and per cent.	Years of survival.
1925	18	2 (11)	7	1930	46	12 (26·0)	2
1926	16	3 (18·7)	6	1931	34	15 (44·9)	−1
1927	16	3 (18·7)	5	1932	23	20 (86·9)	−1
1928	21	6 (28·5)	4				
1929	51	14 (28·2)	3	—	Total 225	75 (33·3)	—

What, therefore, is the case for radiation in cancer of the mouth and pharynx? I believe that I am justified in drawing the following conclusions:—

(1) Total disappearance of neoplasms including glandular metastasis can be achieved by means of radiation.

(2) The disappearance of the growth both primary and secondary may be permanent or temporary, but this is quite impossible to predict clinically.

MR. STANFORD CADE: RADIATION TREATMENT OF CANCER OF THE MOUTH AND PHARYNX:

Fig. 9

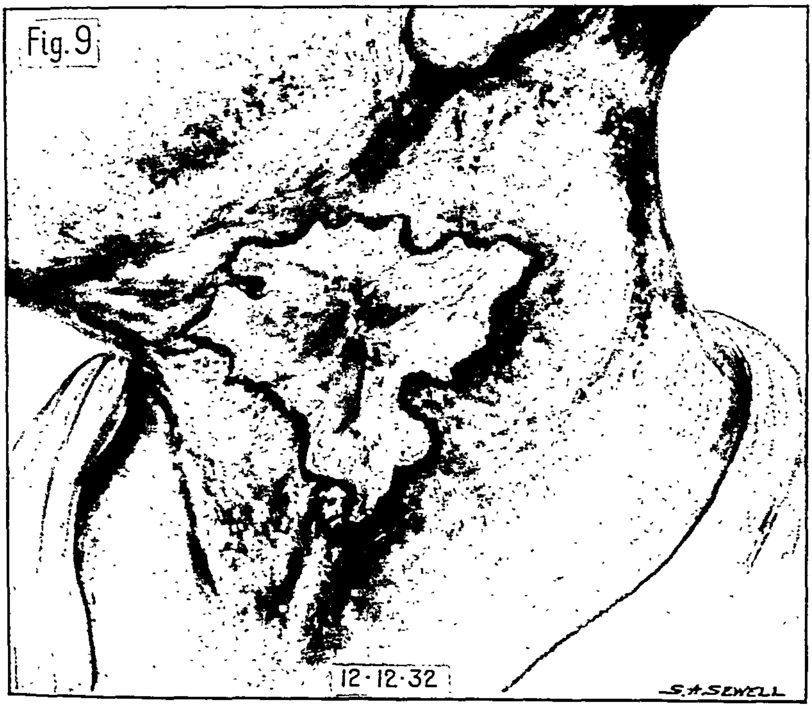


Fig 9: Selective radio-dermatitis following extensive mass radiation of carcinoma of pyriform fossa. Fig. 11 shows complete healing of lesion in the same case and Fig. 10 in a similar case. Fig. 12: Carcinoma of the tonsil before, during, and after treatment.

Fig. 10a

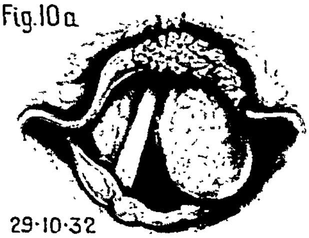


Fig. 10b

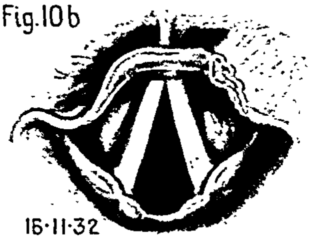


Fig. 10c

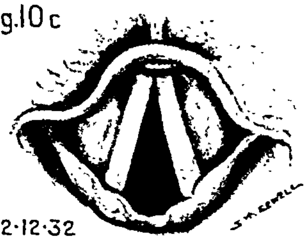


Fig. 11a

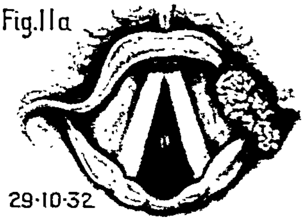


Fig. 11b

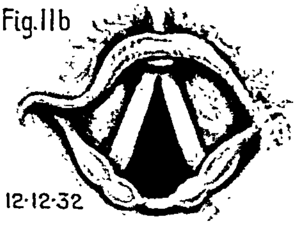


Fig. 12a

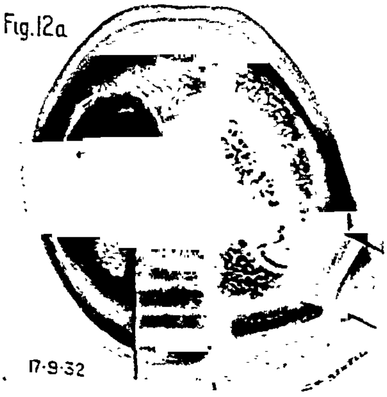


Fig. 12b

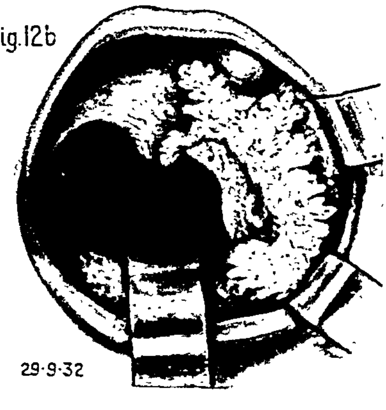
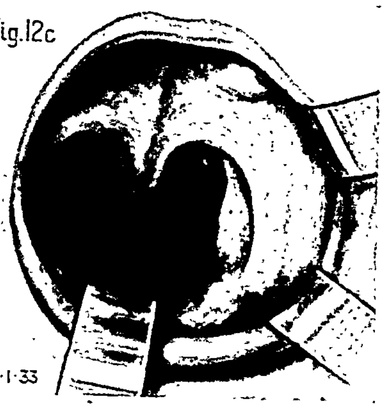
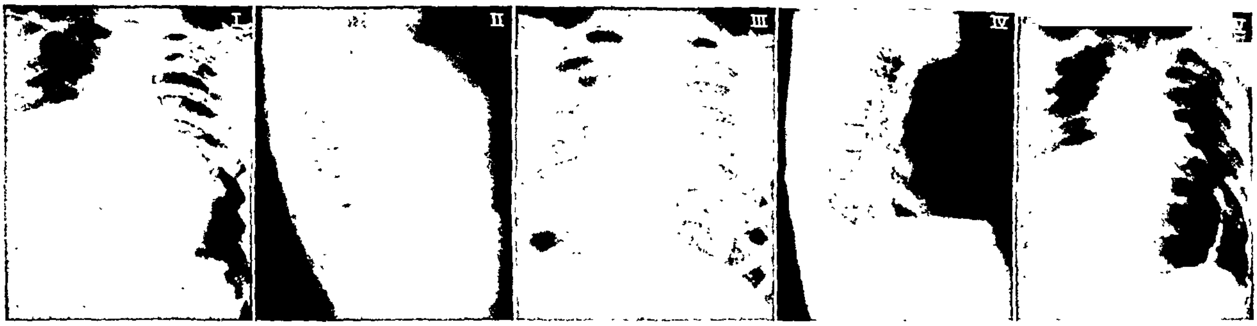


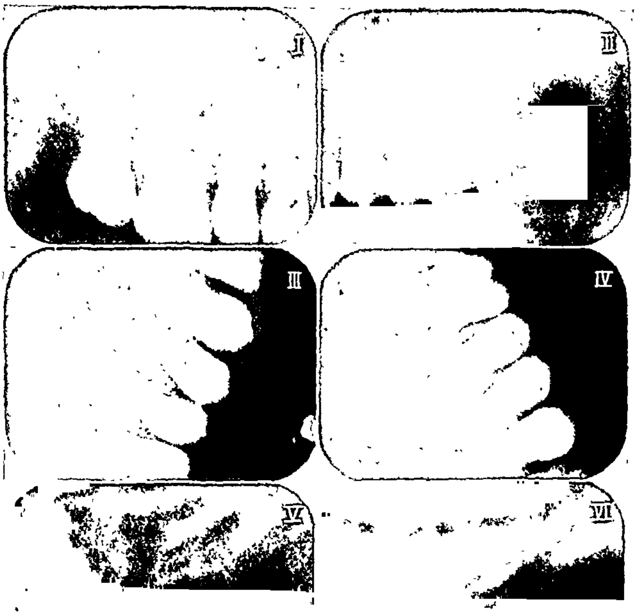
Fig. 12c



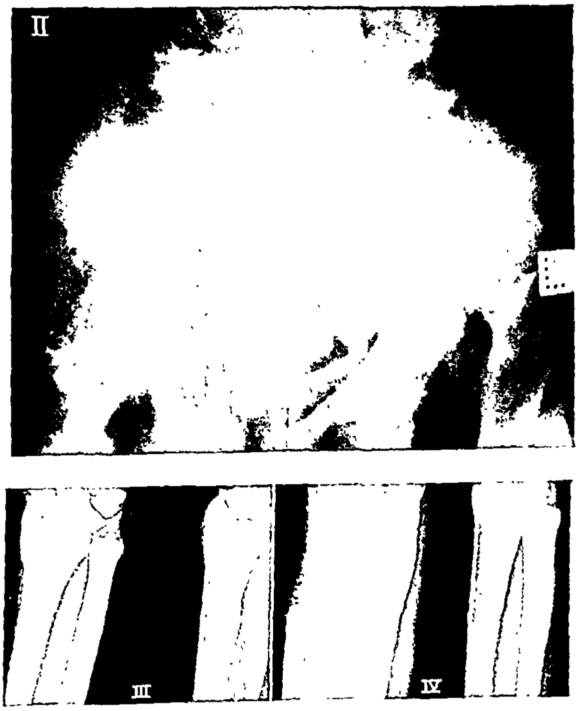
DRS. ADAMS AND HAWKINS: TUBERCULOUS PERICARDIAL EFFUSION



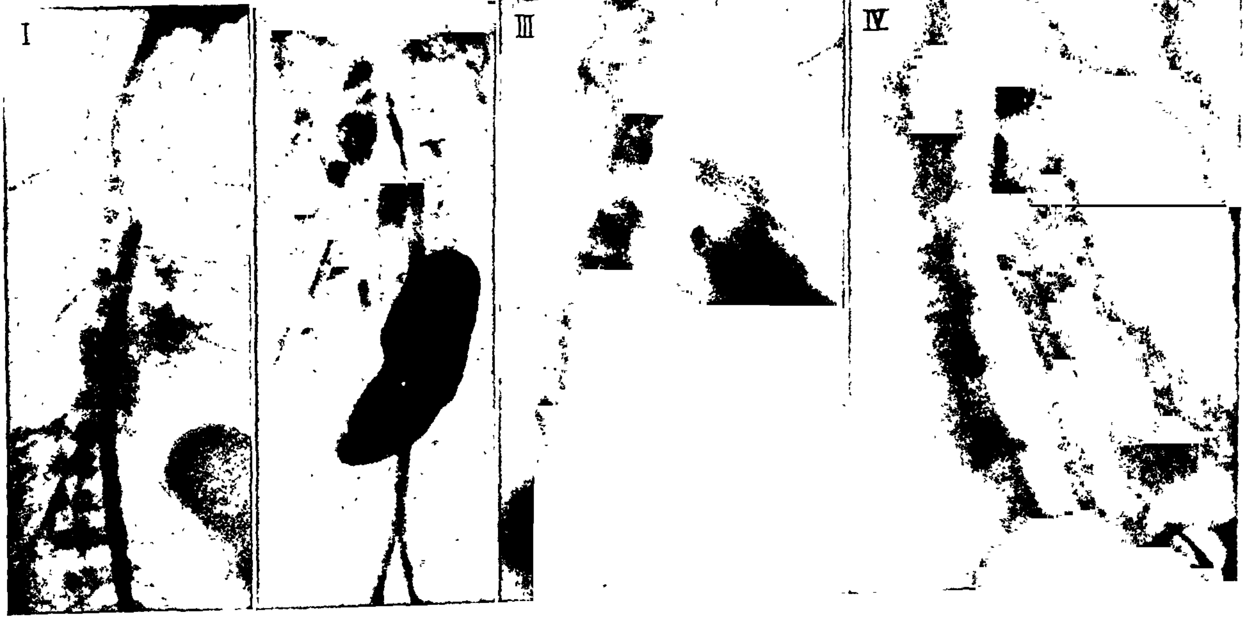
DR. BRODERICK: ANGIOMA OF MAXILLA



DR. LISTER: IDIOPATHIC STEATORRHŒA



DR. HALL: RELATION BETWEEN PULMONARY ARTERY AND ŒSOPHAGUS



(3) In the few years during which radiation has been used it has reached equality of status with surgical excision as regards operable cases.

TABLE II.—*Carcinoma of Posterior and Lateral Pharyngeal Wall: 14 cases*

Year.	Total.	Alive.	Method of treatment.	Effect on primary lesion.
1928	1	0	Peroral needling.	Not healed.
1929	5	0	Needling and collar.	Partial healing.
1930	3	0	1 g. bomb.	"
1931	3	1	X rays and open needling.	Healed.
1932	2	1	2 g. bomb.	"

TABLE III.—*Carcinoma of the Pyriform Fossa: 25 cases*

1927	2	0	Collar.	Not healed.
1928	1	0	"	"
1929	7	0	"	Partial healing.
1930	7	0	1 g. bomb.	Temporary healing.
1931	2	2	Open needling.	Healed.
1932	6	4	Open needling. 2 g. bomb.	"

(4) In inoperable cases it is the only available method of treatment.

(5) Radiation is a purely local remedy and has no influence whatsoever on the subsequent development of dissemination of the disease.

(6) In surgically hopeless cases palliation given by radium and X rays is certainly worth while from the patient's point of view.

TABLE IV.—*Total cases of Oral and Pharyngeal Cancer 1925–1932*

—	Total cases.	Survival. No. and per cent.
Tongue	225	75 (33·3)
Palate	32	16 (50·0)
Cheek	13	4 (30·7)
Pyriform fossa ..	25	6 (24·0)
Lat. pharynx ..	14	1 (7·1)
Tonsil..	16	6 (37·5)
Antrum	12	5 (41·6)
Total	337	113 (33·5)

(7) The most powerful and most promising weapon we possess to-day is the "mass radiation unit."

(8) What we have yet to learn about radiation is infinitely greater than the little we know now.

Conclusion

In conclusion I would like to say that in spite of the pessimistic utterances of the ill-informed and ill-advised laymen, radium justifiably occupies an important place in the fight against cancer, and that there are to-day in Europe and America hundreds of men and women alive and in normal health owing to its beneficial effects. At Mount Vernon Hospital under the directorship of Sir Cuthbert Wallace the path to further progress is being cleared, and we can with confidence look forward to the future of radiation.

I wish to express my sincere thanks to my colleagues at Westminster Hospital, in particular to Dr. Allchin for his coöperation in the radiological treatment, and to Dr. Flint and Mr. Grimmett for their work in the department of physics. I would also like to express my very great appreciation to Dr. Phillips, the resident medical officer at the Westminster Hospital Annexe, and to Miss Parsons, the "bomb" officer, who were responsible for the accurate application of the "mass unit." I am also indebted to Mr. Douglas Harmer for much good advice, criticism, and help in many ways, and this it gives me great pleasure to acknowledge.

LEGENDS TO ILLUSTRATIONS ON SPECIAL PLATE

DRS. ADAMS AND HAWKINS

FIGS. I. AND II.—Before tapping: ant.-post. and lateral views.

FIGS. III., IV., AND V.—After tapping: ant.-post., lateral erect, and ant.-post. recumbent views.

DR. R. A. BRODERICK

FIG. I.—$+^{67}$ showing extreme absorption of $+^{6}$.

FIG. II.—$^{76}+$ for comparison.

FIG. III.—$+^{45}$ showing commencing absorption.

FIG. IV.—$^{54}+$ for comparison.

FIGS. V. AND VI.—Showing present condition of affected area.

DR. W. A. LISTER

FIG. II.—The pelvis of Case 1, showing greatly decreased density of the bones and distortion of the normal shape.

FIGS. III. and IV.—Radiograms of the forearms of Cases 1 and 2 respectively, showing greatly decreased density of the bones. On the left of each picture is the forearm of a normal woman of the same age, taken on the same film for purposes of comparison.

DR. A. S. HALL

FIG. I.—Radiogram of œsophagus and blood-vessels of a fœtus injected with barium emulsion, some of which has escaped into the pericardium. To show impressions made on the œsophagus by the aorta (above) and the right pulmonary artery (below).

FIG. II.—Oblique view of the same, showing the arch of the aorta, the ductus arteriosus, and the right pulmonary aorta.

FIG. III.—Mitral stenosis. The second impression shows here with the bronchus and pulmonary artery in line in front of it.

FIG. IV.—Advanced emphysema. The first and second impressions form one curve at the lower end of which are the bronchus and pulmonary artery.

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A CASE OF TUBERCULOUS PERICARDIAL EFFUSION

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AND

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(WITH ILLUSTRATIONS ON SPECIAL PLATE)

A. B., aged 20 years, in 1930 developed an aching pain in the right side of the abdomen, varying in duration and intensity, getting gradually worse and beginning to keep him awake at night. Later he began to vomit, the vomiting relieving him of pain for two or three days.

From January to March, 1931, he was seriously ill, with fever, 100°–103° F., during which his right arm and leg were swollen; there was also abdominal swelling, constipation, and severe abdominal pain eased only by morphia. He wasted almost to a skeleton, and then suddenly began to improve, making a rapid recovery. In August he again began to lose ground, developing a cough and dyspnœa, the sputum containing tubercle bacilli. During the winter he did not improve, and early in 1932 he entered a hospital where he spent a few weeks in bed. In August he was admitted as an ambulant afebrile case of pulmonary tuberculosis to the Delamere Sanatorium, and was sent to the North Wales Sanatorium for an opinion by Mr. Morriston Davies. He was then a well-nourished boy, and stated that he felt well. He had an occasional cough, scanty sputum, slight dyspnœa; his lips were faintly cyanosed, and there was clubbing and cyanosis of the fingers. There was no anæmia, no alteration of voice, no dysphagia, and the pupils were equal.

The chest wall showed no deformity, no bulging or abnormality of intercostal muscles, no signs of pressure such as dilated veins or œdema, and no enlarged glands. Measurements round the chest at the level of the nipples confirmed the symmetry, the right and left side each being 42 cm. on deep inspiration, with an expansion of about 3¾ cm. The apex-beat could not be defined, and dullness extended from just outside the left midclavicular line to the right posterior axillary line, and from the second costal cartilages down to and continuous with the liver dullness. The heart sounds were very distant, and were conducted into the right axilla with maximum intensity at the pulmonary area. An occasional extrasystole was heard. There was no abnormal dullness at the back nor could the heart sounds be heard posteriorly. The radial pulses were equal and synchronous.

The percussion note at the right apex was poor, the breath sounds being harsh and accompanied by fine crepitations; there was a pleural rub at the right base posteriorly. At the left apex the note was poor, with fine crepitations along the vertebral border of the left scapula. The abdomen appeared normal.

The differential blood count was :—

Neutrophil polymorphs	..	75 per cent.
Large mononuclears ..	..	10 „
Small mononuclears ..	..	14 „
Eosinophils	..	0·5 „
Basophils	..	0·5 „

A complement-fixation test for hydatid was negative. Fluid for a Casoni test could not be obtained at the time.

Radiograms (taken at 4 ft. tube distance) antero-posteriorly (Fig. I. on Plate) showed a spherical shadow resting on and apparently attached to the diaphragm, and extending upwards and embracing the aorta. It extended from the right axilla across to the left midclavicular line measuring 21 cm. high by 23 cm. wide. The lateral view (Fig. II.) showed the spherical shadow extending from the sternum anteriorly to the middle of the bodies of the vertebræ posteriorly, measuring at its widest diameter 15 cm. The lung fields, where visible, showed a fine mottling throughout, most dense in the left upper zone. On screening no pulsation was seen.

DIFFERENTIAL DIAGNOSIS

In considering the diagnosis the very slight symptoms and the remarkable radiograms offered an interesting problem. The lateral radiogram showed the shadow to be above the diaphragm; its spherical shape suggested that it contained fluid, and a differential diagnosis of pericardial effusion, hydatid cyst, or dermoid cyst was considered.

A few cases of hydatid cyst have occurred in Caernarvonshire near the boy's home, and his constant contact with dogs and the latency of symptoms might favour this. Against this diagnosis was the low eosinophil count, the negative complement-fixation test, and especially the fact that there was a hemispherical shadow present on both sides of the chest, which did not give the appearance of displacing the mediastinum. A primary hydatid arises in a lung and never in the pleura, and a hydatid cyst of this size arising in a lung could never project across the midline to such an extent as suggested by the radiographic appearance, without a very definite displacement of the mediastinum.

A mediastinal dermoid cyst might present a similar radiographic appearance, but the cases previously reported have always been higher in position in the chest than this. Further, a dermoid would not have attained this size without giving pressure symptoms.

In coming to a diagnosis of pericardial effusion it was realised that had a tumour of this size been extrapericardial the heart must have been displaced, giving a corresponding displacement of the apex-beat and heart sounds, and the displacement would almost certainly have caused pressure symptoms and signs. Again, the lateral radiogram shows a shadow in exactly the position of the heart, and there is no other shadow which could be the heart. Finally, the absent apex-beat, the shape of the area of dullness, and the muffled distant heart sounds confirm this diagnosis.

EXPLORATION

In January, 1933, the boy at last consented to exploration, and he was admitted to the North Wales Sanatorium. On the day of admission before being put to bed he was found playing a game of football without distress.

He was kept in bed for a fortnight, and on the evening before operation was given nembutal grs. 1½ orally, a similar dose next morning. At midday, morphia gr. ¼ was given hypodermically, and half an hour later an injection of 1 per cent. novocain with 1 in 1000 adrenaline (0·5 c.cm. adrenaline to 60 c.cm. novocain solution) was made along the fourth and fifth costal cartilages on either side of the midline and into the adjacent spaces. In addition, the fourth, fifth, and sixth intercostal nerves were blocked in the right axillary line with 1·5 c.cm. novocain solution, and 5 minims of absolute alcohol to each.

One hour later Mr. Morriston Davies made an incision over the fourth right costal cartilage. The tissues were

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reflected and about 5 cm. of cartilage removed. An exploring needle was inserted into the pericardial sac and a muddy yellow fluid with lymph flakes was withdrawn into the syringe. Audible friction was produced when the needle touched the visceral pericardium. Two sutures were put through the parietal pericardium and a small incision made between them. Through this a catheter was inserted and two litres of fluid were syphoned off. The sac was washed out with saline. The sac was closed with purse-string sutures, and the skin incision with Michel's skin clips without drainage. During the operation the patient was quite conscious and showed no sign of shock. There was a slight rise in the pulse-rate towards the end.

A specimen of the fluid was examined at the central tuberculosis laboratory of the Welsh National Memorial Association by Dr. W. H. Tytler, who reported it as a very cloudy amber-coloured fluid. On centrifuging a fair amount of deposit was obtained, films from which showed amorphous material with several degenerated cells. By the Ziehl-Neelsen method about half a dozen acid-fast bacilli were found on direct examination. Broth culture yielded no growth.

Following the operation radiograms (Figs. III. and IV.) show the parietal pericardium to be in the same position as the periphery of the original shadow, the thickness of this layer being up to 0·5 cm. In the pericardial sac, which is now practically empty, the heart appears of normal size occupying a central position with its lower outline merged in the shadow formed by the remaining fluid, the level of which is just below the vertebral end of the tenth rib. The appearance of the heart suggests that it has rotated on its axis, its present right border giving the appearance of the normal left border of a heart; this is well shown in the radiogram (Fig. V.) taken with the patient lying down. A striking peculiarity of the pericardial shadow is that its greater diameter is across the right of the chest instead of across the left. It is interesting to speculate as to whether the torsion of the heart existed prior to the effusion and whether, therefore, this was responsible for the larger right-sided shadow. On screening, the heart could be seen in a rotated position beating in the fluid, while the sac showed slight expansion and contraction on expiration and inspiration.

Clinical examination showed a slightly higher pitched note over the original area of dullness, while the heart sounds were almost as distant as previously. On shaking a succussion splash could be heard without the aid of a stethoscope, and the patient himself was conscious of it. There was a slight serous discharge from the wound which dried in three weeks. After a fortnight the patient was allowed up and put on graded exercises. He is now (April) feeling very well and on top grade (fork and wheelbarrow). All symptoms have cleared up. There is no cyanosis, and the finger clubbing is less. Screening has shown the fluid to be slowly accumulating, until it is at the level of the vertebral end of the eighth rib.

COMMENT

The sequence of events would appear to be a slow onset of abdominal tubercle, later becoming very severe with a hæmatogenous spread to the pericardium and lungs. The chronic nature of the pericarditis is shown by the absence of symptoms of pressure, the large amount of fluid, and the thickness of the sac, while the lung involvement is confirmed by the positive sputum and the radiograms. According to Osler, "probably no serious disease is so frequently overlooked by the practitioner," and it is evident that tuberculous pericarditis is not a particularly rare condition. Wells[1] found it in 10 out of 1048 autopsies, Brooks and Lippincote[2] in 17 out of 61. Before the improvement in radiographic technique many large tumours were described, as, for instance, the dermoid cyst reported by Smith and Stone,[3] measuring 15×11×9 cm. Others compared with familiar objects appear to have been as large, but with more accurate measurements obtainable a definite comparison of sizes is now available.

Apart from the size, the interesting features are that the boy should have found himself capable of strenuous exercise before the operation, the ability to stand removal of such a large volume of fluid without shock, and the thickness and rigidity of the parietal pericardium, with the peculiar torsion of the heart itself.

We wish to acknowledge our gratitude to Mr. Morriston Davies for his encouragement, and to the Welsh National Memorial Association through Dr. Fenwick Jones for permission to publish the notes and radiograms.

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CAVERNOUS ANGIOMA OF THE MAXILLA

FATAL HÆMORRHAGE AFTER TEETH EXTRACTION

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With notes of a similar non-fatal case reported by
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(WITH ILLUSTRATIONS ON SPECIAL PLATE)

On April 11th, 1932, a girl, aged 11, was referred to me at the Children's Hospital, Birmingham, suffering from "bleeding from the gums." On examination I found the left side of the face rather enlarged and slightly bluish with a pulsating spot over the malar bone; there were four scars, two over the malar bone, one near the inner canthus of the eye, and one over the region of the facial artery. Examination of the mouth revealed a perfect denture containing 28 non-carious well-articulating teeth. The left maxilla was slightly expanded and the two premolar and molar teeth were loose, but the gums were firm; on moving the molar teeth a little blood came from the sockets. The mother gave the following history:—

> At 18 months a small nævus was observed at the angle of the nose and eye, and at 4 years the child was brought to hospital, where the late Mr. Nuthall saw her. During the next four years the facial and two or three branches of the internal maxillary artery were tied because of pulsation of the nævus and also because of bleeding into the nose. There had been no trouble with the temporary dentition, which had been shed naturally with the eruption of the permanent teeth.

A diagnosis of angioma or cirsoid aneurysm of the maxilla was made, and I gave the mother a note to consult with me and my partner, Mr. Harold Round, at our rooms on April 14th. This appointment was not kept, but on May 26th the patient again reported at hospital and was sent down to us. On examination the first thing that struck me was that the teeth were looser. The child had been bleeding and the mother produced a bottle containing about 8 oz. of blood shed in the night, a similar amount having been lost the previous night. This bleeding was apparently coming from the sockets of the molars. Radiograms were taken and models of the mouth obtained. The radiograms show extreme absorption of the roots of the first molar tooth (Fig. I. on Plate) and less of the premolars and second molar. (Fig. III.) A comparison with the sound side was made. (Figs. II. and IV.) A vulcanite splint to obtain pressure on the wound in case of necessity was prepared. I arranged for the child to be admitted to hospital and for the resident surgical officer, Mr. W. E. Wimberger, to stand by during the extractions in case of undue hæmorrhage.

When I arrived at the hospital that evening I found that the child had been bleeding profusely, 8 oz. in as many minutes. This had been controlled by pressure on the teeth. In view of this I requested Mr. Wimberger to tie the external carotid artery. By this means I thought that I could extract the loose teeth and stitch up the wound tightly with no hæmorrhage, and hoped that the wound would be sufficiently consolidated before the collateral circulation was re-established. After the artery had been ligatured it was noticed that the pulsation on the cheek had ceased, and accordingly the wound was closed. I then extracted the first upper molar and there was immediately a gush of blood, which was with difficulty checked by my finger in the socket. A wool plug soaked in carbolised resin and tannic acid was then put in the socket and a temporary splint of Stents' composition held over it. While this was firmly held in position there was no hæmorrhage, but on the smallest movement it recommenced.

A consultation was held as to the next procedure, and the advice of Prof. Seymour Barling, who arrived in six or seven minutes in response to a telephone call, was obtained. It was decided to open the wound, dissect out the common carotid, clamp it and note the effect. This was done, and on removing the splint and plug only a slight trickle of blood came from the socket; therefore it was decided to ligature the artery. This operation was performed and at the same time a piece of the sternomastoid muscle was cut away to serve as a plug to be stitched into place in the sockets. It was then decided to extract the second molar, plug the sockets with muscle and tightly stitch the wound. The moment the second molar was extracted there was a gush of blood, just as violent as the first. This was with greater difficulty controlled with digital pressure and, although eventually plugs were fitted into each socket and stitched, the patient's heart and respiration ceased and in spite of everything that could be done the efforts to restore them were unsuccessful.

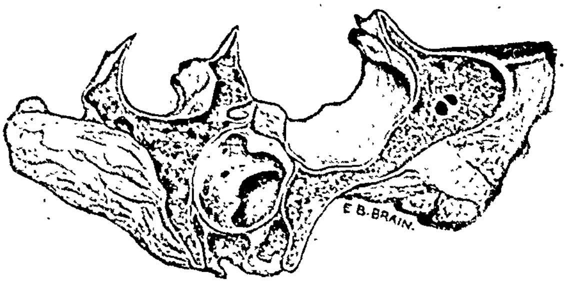

FIG VII.—Drawing of a section of the maxilla showing the angioma.

PATHOLOGICAL EXAMINATION

Examination revealed a large cavernous angioma in the maxilla spreading almost to the middle line with its floor formed by the roots of the teeth. (Fig. VII.) Its position accounts for the failure of the ligature of the common carotid to control the hæmorrhage, as it must have drawn a considerable blood-supply from the right side. Mr. A. W. Wellings, who kindly cut a section from the first molar, reports: "The section shows true absorption with well-marked typical excavations." Prof. Haswell Wilson, who performed the post-mortem examination, reports as follows:—

"The body is that of a well-built, slender girl. It is very anæmic in appearance. There is a recent left paramesial epigastric operation wound; a recent operation wound on the left side of the neck and old operation scars on the left side of the face. The latter are situated along the edge of the lower jaw, on the cheek along the inner side of the nose, and over the malar prominence. The thoracic and abdominal viscera contain very little blood, otherwise they are normal in appearance. The left external and common carotid arteries have been ligatured. On dissection of the structures over the left superior maxilla, that bone is found to be enlarged and the alveolar margin is expanded. The surface of the bone, especially over the malar process, is soft, spongy, and vascular. Two molar teeth have been extracted and the sockets are tightly packed with gauze. On opening the maxilla the whole substance of the bone between the alveolar border and the antrum is found to be occupied by a large cavernous angioma. This is irregular in shape and extends from behind the molar teeth almost to the middle line in front. It is covered by a mere shell of bone and is lined by endothelium in which the openings of innumerable vascular channels are seen. The lining is ruptured immediately above the sockets of the teeth which have been extracted."

Prof. Wilson concludes: "This child suffered from a large cavernous angioma in the substance of the left superior maxilla. This was probably of congenital origin but would tend to increase in size owing to absorption of the bone around it. By virtue of its position it would have an abundant blood-supply from both sides of the face, and ligation of the vessels on the left side of the neck would therefore not be sufficient to control hæmorrhage from it. The anæmic condition of the body is consistent with death from hæmorrhage. I am therefore of opinion: (1) that this child suffered from a cavernous hæmangioma of the left superior maxilla; (2) that she died as the result of hæmorrhage following the extraction of teeth; (3) that the immediate cause of death was cardiac failure whilst under the influence of a general anæsthetic."

MR. ROUND'S CASE

Dangerous hæmorrhage probably arising from a cirsoid aneurysm after extraction of a tooth; later hæmorrhage and operation, ligature of external and common carotid arteries.*

I have recently become acquainted with a very interesting case of hæmorrhage which occurred in the practice of the late Mr. J. W. Turner. Through the kindness of Mr. Heaton, Dr. McCardie, Dr. Brash, and Mr. W. Shilton, who have furnished me with notes, it is possible to give some details of the history of the case.

The patient, Miss T., then aged 12 years, saw Mr. Turner on July 20th, 1907, at 12.30 P.M., and complained of swelling and pain of a pulsating nature around the first right upper molar; and found that she could ease the pain by pressing hard on the cheek on that side. The gum in this area had been red and swollen since she was 6 years old, and the condition became very much worse as she cut her 12-year-old molars.

This swelling was thought to be an alveolar abscess; the tooth had been previously treated with arsenic fibre and siccaform dressing, and Mr. Turner decided to extract. Dr. McCardie gave N_2O. It was a simple and easy extraction but was immediately followed by a great gush of blood. Dr. McCardie says: "Blood spurted for a foot or two from the wound and a most severe arterial bleeding, drenching the clothes and filling the mouth, ensued. I thought that an abnormal palatine blood-vessel had been torn. The child quickly and quietly came round and was perfectly amenable, behaving splendidly. Attempts to plug the wound were useless, blood gushing forth as at first; and eventually, after a minute or two, I managed to compress the bleeding point, which seemed to be on the edge of the socket, with my finger, and stop the bleeding. The child became very pallid and white. While I compressed the socket. Mr. Heaton was sent for, and he was able to plug the cavity and compress the bleeding point against the socket wall. Mr. Turner prepared a cork prop, which was held against the ribbon gauze plug by the lower teeth, and a four-tail bandage was applied. I have never before or since seen anything like such severe and dangerous hæmorrhage after tooth extraction."

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* Reprinted verbatim from the Midland Medical Journal, July, 1912.

The patient remained at Mr. Turner's rooms until 6.30 P.M., when she was quietly removed to her home. No recurrence of the hæmorrhage occurred and the plug was allowed to come out gradually; the wound healed well, but the patient was white and weak for some time after.

On Nov. 14th, 1908, Mr. Turner notes as follows *re* regulation work: "I had prepared bar with collars for molars, but on starting to adjust the collars found that the second molar tooth on right side was perfectly loose, just as though it was placed in a rubber sack which was resting in water. Under these circumstances I decided not to use it, and to leave regulation alone for a year or two." Then on Nov. 1st, 1909, this note occurs: "Complains of throbbing pain in upper right second molar—part swollen; when in bed and the hand pressed over the cheek the swelling appeared to go away—tooth very loose, seems to have no bony socket, extraction anticipated, surgeon and anæsthetist to be present if such be necessary." On Nov. 22nd there is a further note: "The patient has had a good deal of bleeding in night from distal side of upper right second molar; quite a cupful, and some bleeding the night before that. Advised consult her doctor."

On the following evening she had more hæmorrhage, when Dr. Brash was asked to see her, and describes the condition as follows: "On examination I found that on the right upper jaw she had a soft spongy pulsating mass to which two teeth were loosely attached and from which at this time there was some slight oozing. I advised consultation with Mr. Heaton in the morning. Later in the same evening, about 11 P.M., I received an urgent message to visit her, and found she was blanched and her pulse rapid and very feeble, and that there had been furious hæmorrhage from the pulsating mass. Her father had partly controlled the loss of blood by pressure upon the bleeding area. Mr. Heaton was sent for at once and in the meantime the bleeding was controlled by introducing pads upon which pressure was made by the lower teeth. Mr. Heaton removed the pads and then the furious hæmorrhage was repeated. Pads were introduced again and a nurse sent for. Until the arrival of the nurse I compressed the carotid artery and then the nurse continued the pressure until early morning when the patient was removed to a nursing-home where Mr. Heaton operated."

In describing the operation Mr. Heaton says: "In the first place the second right upper molar was extracted and furious hæmorrhage took place. The external carotid artery was compressed, also the socket, and as the hæmorrhage persisted the external carotid artery was tied. It was then thought the hæmorrhage would cease and the upper right second bicuspid was extracted, when the bleeding was as furious as ever, decidedly arterial, not venous. The common carotid artery was then tied, and even after that the hæmorrhage persisted, and the bleeding could only be controlled with difficulty by pressure. A vulcanite cap was made to fit over the pads, and pressure kept up by this means for eight or ten days. The patient made a good recovery. There was nothing removed from the enlarged and spongy jaw except the teeth. After these were extracted there remained a cavity as big as a walnut which was not thought to be the antrum. All bone seemed to have disappeared."

At the present time the patient is quite healthy. Her gum tissue is slightly hypertrophied generally with some tendency to gingivitis, but there is nothing to indicate any recurrence of the previous trouble. At the site where the tumour occurred and the teeth were extracted the tissue appears to be quite normal, and very little more alveolar absorption than would be expected after the extraction of these three teeth. There is no history of hæmophilia.

The diagnosis appears to be that of a plexiform angioma (or cirsoid aneurysm), and it is interesting to note that the origin apparently occurred as the first permanent molars were cut and the climax was reached as the second molars were cut. Some injury to the tissues at this time might have caused the development of the tumour.

Mr. Round adds the following (1933): "This patient has been under my care since the above notes were reported. There appears to be no abnormality at the present time and her health is excellent. The upper right central incisor and first bicuspid were extracted during 1927–29 and no difficulties were met with. Radiograms of the affected area are reproduced. (Figs. V. and VI. on Plate.)"

IDIOPATHIC STEATORRHŒA OF ADULTS

A RECORD OF TWO CASES

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(WITH ILLUSTRATIONS ON SPECIAL PLATE)

THE following cases are published with the object of supporting the observations of Bennett, Hunter, and Vaughan,[1] who have recently summarised the literature on this disease and reported 15 cases which they had been able to investigate very fully. It is not proposed, therefore, to make any further reference to the literature, or to enter, in any way, into a discussion on the pathology of the disease and its relationship to cœliac disease of children and tropical sprue.

The condition is regarded as a rare one, but possibly it is more common than is generally supposed, for it may present a great variety of clinical features, and steatorrhœa, which is the essential characteristic, may be by no means obvious. Often, therefore, the diagnosis may be missed, as it was, to begin with, in the first case here reported. It is certainly remarkable that three cases should have been encountered in a single practice in the course of two years. Two are here described and the third is fully reported in the paper already referred to[1] (Case No. 12).

THE FIRST CASE

The patient was a single woman, aged 21 years.

Clinical History.—The mother states that she was a full-time child, and was breast-fed for 12 months. Nothing unusual was noticed about the age at which she began to sit up or cut her teeth. She started to walk at the age of 18 months, and at this time a congenital dislocation of the left hip was noticed. This was treated with plasters for many months, but a permanent reduction could not be obtained. She talked by 2 years of age, and never suffered from rickets. From the age of 4 to 17 years she suffered every six months or so from attacks of vomiting, diarrhœa, and abdominal pain. At no time did she have any cramp, but she remembers having ulcers on the tongue while attending school. Menstruation began at the age of 17. In 1928 she was given a course of ultra-violet light, at the Plymouth Public Dispensary, on account of pain and weakness in the legs, and derived benefit from it. In August, 1930, an irritable eruption broke out on the nape of the neck and around the toes of the right foot. It gradually spread, and by December of that year the rash had involved large areas on all four limbs, trunk, and face.

Family History.—Her mother and father, brothers and sisters are all healthy, and no other case comparable to that of the patient is known of in the family. She has never lived out of England.

Clinical Notes.—In December, 1930, she was admitted to the City Hospital, Plymouth. At this time, the head, neck, and limbs, and to a lesser extent the trunk, presented numerous, large, irritable areas of dark erythema, up to 4 in. in diameter, sharply defined and more or less circular in outline. The surface of many was rough and weeping, and covered around the periphery with dark red-brown crusts. These secondary changes were more conspicuous in the lesions of the face, neck, and distal portions of the limbs, while on the trunk, thighs, and upper arms areas of simple erythema predominated. The cause of the condition was not recognised, and infective dermatitis was suspected. Mild parasitic and antiseptic ointments were used, but these had no effect whatever upon the eruption, and gradually the erythematous areas became confluent, and by the early spring the entire cutaneous surface was the site of a severe exfoliative dermatitis, which was intensely irritable and resented all but the mildest applications. An attempt at treatment with ultra-violet light caused very severe discomfort and had to be abandoned. Throughout the summer and up to the end of the year treatment consisted of simple applications such as calamine liniment. Although most of the hair had fallen out, some improvement in the skin condition was apparent by October, 1931, but she now began to complain of pain in various bones.

The first to be affected was the left clavicle. By December, 1931, she was so far improved as to be allowed home for Christmas, but she returned to hospital again in January, 1932, and remained for a further two months, by which time the skin had almost completely recovered, except for some generalised pigmentation. She now complained considerably of pain and tenderness in the trunk and limbs, and was unable to walk on account of it.

During the Easter holidays I was enabled, through the kindness of Dr. Donald Hunter, of the London Hospital, to examine some of his cases, and the resemblance of the present case to them was at once apparent.

She was admitted to the South Devon and East Cornwall Hospital on April 8th, 1932, for a full investigation. By that time the softening of the bones had become very much worse and they were extremely tender on pressure.

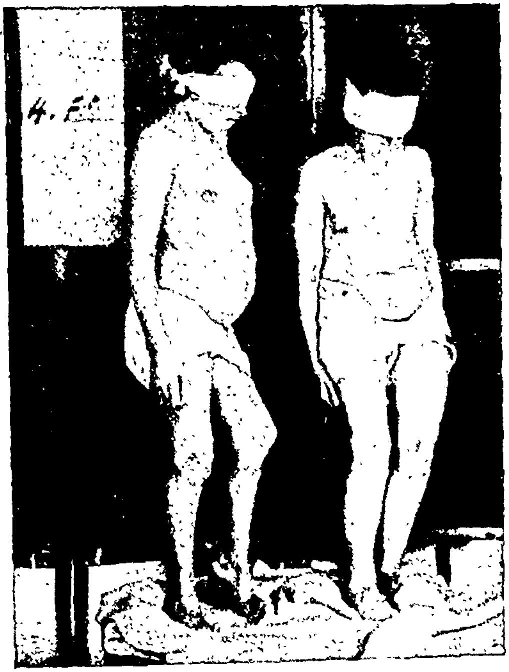

FIG. I.—Shows short stature in both patients, and in Case 1 (on the left) protuberant abdomen, and pigmentation of the skin, following the skin eruption.

On general examination she was very much undersized, height 4 ft. 7 in., weight 4 st. 10½ lb. (Fig. I., patient on the left.) The hair was very scanty and there was generalised pigmentation of the skin, with here and there still remaining some degree of scaling over the back and shoulders. She was of infantile appearance, and the breasts and pubic hair were poorly developed. The fingers and toes showed a very great degree of clubbing. The chest was barrel-shaped, with beading of the ribs and a well-marked Harrison's sulcus. There was severe genu valgum on the left side and the left hip-joint was dislocated. The abdomen was somewhat pendulous and protuberant. Chvostek's sign was strongly positive, but Trousseau's sign was absent. The tongue was clean and showed a glazed surface at the margin, and the teeth, though somewhat notched, were not by any means grossly defective. There was no complaint of diarrhœa, and the stools, though soft, were not in any way unusual in appearance. No abnormality was found in the heart, lungs, abdomen, or nervous systems, and the urine contained no albumin or sugar.

Examination with the *slit-lamp* showed no opacity in the lenses.

Wassermann reaction negative.

Fæces:	
Total fat	37·3 per cent. of dried fæces.
Fatty acids	54·8 ,, ,, of total fat.
Neutral fat	45·2 ,, ,, ,, ,,
Plasma phosphorus ..	2·3 mg. per 100 c.cm.
Serum calcium	11 ,, ,, ,, ,,
Blood-urea	25 ,, ,, ,, ,,

Radiogram of bones revealed spontaneous fractures of the eighth and ninth ribs on the right side in the posterior axillary line, and there was conspicuous generalised rarefaction of every bone with failure of union of many of the epiphyses and great distortion of the pelvis. (*Figs. II. and III., on Plate.*)

Progress.—The patient was given four daily injections of 2 c.cm. of tetanol intramuscularly, and placed on a diet low in fat but high in calcium. She was also given grs. 60 of calcium lactate, nine pellets of radiostol, each containing 3000 international antirachitic units, and ½ oz. of Marmite daily. Under this treatment the tenderness in the bones cleared up in the course of a few weeks, and on her discharge on May 17th, 1932, she was able to walk as well as her crippled hip would allow her. She has remained on the above treatment ever since, and has continued in excellent health. Her hair is now thick and curly, and her skin supple and healthy. The clubbing of the fingers is very greatly reduced in degree. Chvostek's sign still persists.

Further special tests carried out in November, 1932, gave the following results :—

Plasma phosphatase	27
Serum calcium	9·8 mg. per 100 c.cm.
Urea concentration up to 2·85 per cent. urea.	
Glucose tolerance:	
Resting blood-sugar	0·098 per cent.
½ hour after giving 50 g. glucose .	0·110 ,, ,,
1 ,, ,, ,, ,, ,,	0·136 ,, ,,
1½ hours ,, ,, ,, ,,	0·110 ,, ,,

THE SECOND CASE

The patient was an unmarried woman of 39, referred to me by Dr. W. A. Trumper of Ivybridge.

Clinical History.—The patient was a full-time baby, breast-fed up to six months. Started walking at 16 months, and sat up, cut her teeth, and talked at the normal time so far as could be remembered. She stated that she had never suffered from rickets nor from diarrhœa, and was quite well until, at the age of 7, she began to get attacks of cramp in the hands and feet, which she illustrated by a most characteristic imitation of carpopedal spasm. These attacks would last for an hour or two and then pass off. As she grew older the attacks became more severe and prolonged, but they would always clear up during the summer months until the year 1931, for the whole of which some slight degree of cramp never entirely left her. The season was a particularly sunless one. At the age of 15 years she had an osteotomy performed on the right femur. The teeth of her second dentition were always poor and notched. Many of them became so loose that she had no difficulty in pulling them out with her fingers. Menstruation occurred between the ages of 14 and 15. Her tongue had never been sore, but she had suffered from "anæmia" in 1931. She had never been out of England.

Family History.—Her mother and father, a brother and four sisters are all alive and well. One brother was killed in the war.

She was admitted to the South Devon and East Cornwall Hospital on March 7th, 1932. *On examination* she was a very undersized woman, with poorly developed breasts and a slightly pigmented skin. Height was 4 ft. 6 in., weight 6 st. 11 lb. 13 oz. (Fig. I., patient on right.) There was a moderate scoliosis to the left, and considerable limitation of movement of both hip-joints. Her hands were permanently held in a moderate tetanic position, and she suffered frequently from attacks of painful and typical carpopedal spasm. Chvostek's sign was strongly positive, but Trousseau's sign was negative. No other evidence of disease could be found in the heart, lungs, abdomen, or nervous systems, and there was no complaint of diarrhœa. The fingers and toes showed no clubbing. The few teeth that remained were very small and somewhat notched. The urine was in every way normal.

Fæces: Appeared normal.

Total fat	43 per cent. of dried fæces.
Fatty acid	43 „ „ of total fat.
Neutral fat	57 „ „ „ „
Serum calcium	7·9 mg. per 100 c.cm.
Plasma phosphorus	4 „ „ „ „
Blood-urea	25 „ „ „ „

Radiography of the bones showed generalised diminution of calcium salts in all bones (Fig. IV. on Plate) and a severe degree of osteo-arthritis of both hip-joints.

Treatment and progress.—Daily injections of 2 c.cm. of tetanol were given for two weeks. She was put on a low fat-high calcium diet, with calcium lactate grs. 60, six pellets of radiostol, each containing 3000 international antirachitic units, and 1 oz. of marmite daily. Under this treatment she very rapidly improved, and in a few days could move her hands freely, a thing she had been unable to do for many months. On March 22nd her serum calcium had risen to 9·6 mg. per 100 c.cm., and by April 13th to 11·3. The blood count on March 25th showed:

Red cells ..	4,950,000	Polymorphs ..	87%
Hæmoglobin ..	70%	Lymphocytes ..	9%
Colour-index ..	0·7%	Monocytes ..	4%

She has remained on the above diet ever since her discharge and has kept in good health without any recurrence of her cramp. In November, 1932, she was readmitted for further investigation and a review of her progress. Mr. C. B. F. Tivy kindly examined her eyes and reported as follows:

> "Her vision is defective. She can count fingers at two feet with her right eye. With the left eye vision is 6/60, and with her glasses 6/36. She is wearing a +5 D sphere in each eye. In both eyes there are dense, flake-like opacities at the periphery of the lenses with radiating sectors. The changes are greater in the right than the left eye. The fundi could not be seen."

Further investigations showed:

Red cells ..	4,050,000	Polymorphs ..	68%
White cells ..	5,600	Lymphocytes ..	20%
Hb.	79%	Monocytes ..	9%
C.I.	0·8	Mast cells	3%

Plasma phosphatase .. .. 6·9
Serum calcium .. .. 9·6 mg. per 100 c.cm.
Urea-concentration test—over 3% urea.
Glucose tolerance:
Resting blood-sugar, 0·100 %.

Blood-sugar ½ hour after giving 50 g. glucose	0·180%
„ „ 1 „ „ „ „ „	0·205%
„ „ 1½ hours „ „ „ „	0·180%
„ „ 2 „ „ „ „ „	0·143%

CHEMICAL METHODS

Methods similar to those described in the paper by Bennett, Hunter, and Vaughan were used for all but one of the estimations described in this paper, and further references are not, therefore, necessary. The exception is the method used for estimating plasma phosphatase. A newer method described by Jenner and Kay[2] was used, which is very much simpler than Kay's older method.[3] A point to be noted, however, is that the average for normal cases by the new method is about 6·06 units as compared with 0·124 units by the other method—i.e., about 50 times as great. This difference must be borne in mind when comparing phosphatase figures in this paper with those of Bennett, Hunter, and Vaughan, who employed Kay's earlier method.

COMMENT

The main interest of these two cases is the diversity of complaints which brought them under observation. In the first the skin eruption appears to have been more severe than in any case hitherto described, and it completely dominated the clinical picture for more than a year. Throughout her stay in hospital nothing unusual was noted in the stools, and although she often had two motions a day there was at no time any suggestion of diarrhœa. The second case complained of tetany only, which symptom, by itself, naturally suggested a parathyroid defect. The stools appeared perfectly normal in every way, but as the first case was under observation at the time of her admission to hospital, an estimation of their fat content was carried out, and at once revealed the true nature of the trouble.

The main clinical features of the condition, as seen in adults, are: diarrhœa; softening of the bones, leading to general deformity or even spontaneous fractures; tetany, which may be latent and revealed only by eliciting Chvostek's or Trousseau's sign, or subjective, causing cramps or fully developed carpo-pedal spasm; anæmias of no constant type, but conforming either to the hypochromic or hyperchromic megalocytic varieties; skin eruptions, in which the lesions bear a superficial resemblance to psoriasis, but are liable to be more irritable, have not the same distribution and tend rather to be covered with crusts than with scales; and lastly, changes in the lens of the eye, which are usually slight and only to be discovered by examination with the slit-lamp. Complaint of any one of these conditions may bring the patient under observation, and it is essential, if the correct diagnosis is to be made, to bear the disease in mind and to make careful inquiry into the past history, particularly to determine whether in childhood the patient suffered from or was suspected of rickets or consumptive bowels. An attempt should be made to elicit Chvostek's or Trousseau's sign, and lastly, the stools should be subjected to analysis for fat, even if they appear perfectly normal, for it is the excess fat in the stools which is the essential characteristic of the disease. Treatment along the lines prescribed for the two patients here recorded gives very satisfactory results. Case 2 has survived the past winter without any return of cramp whatever, the first winter for 30 years during which she has been free of pain, and Case 1 is still continuing in excellent health. It is a pity that in this case the nature of the condition was not recognised earlier, for there is some evidence to suggest that the skin eruptions are due to a defect of vitamin B, and a good opportunity was lost of putting this theory to the test.

In conclusion, it is a pleasure to acknowledge the debt I owe to Dr. Donald Hunter for drawing my attention to these cases and for his encouragement and criticism. My thanks are also due to Dr. Eric Wordley who has carried out all the pathological investigations here recorded, and without whose assistance the case records would have been of little value; and to Mr. C. B. F. Tivy for examining the patients' eyes with the slit-lamp.

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OBSERVATIONS ON THE RELATION BETWEEN THE PULMONARY ARTERY AND THE ŒSOPHAGUS

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(WITH ILLUSTRATIONS ON SPECIAL PLATE)

In 1931 Parkinson and Bedford[1] described an impression on the œsophagus which they called "the pulmonary artery impression." In this note I propose to make some further observations on the subject.

At the level of the bifurcation of the trachea the œsophagus lies slightly to the left of the midline and so is behind the left bronchus; it then passes down behind the glands in the bifurcation of the trachea. In the adult these glands are very often bulky and are surrounded by abundant areolar tissue, the whole being in thickness about equal to that of the main bronchi. In one case dissected the glands were found in an abnormal situation along the medial border of the left bronchus, and the œsophagus showed a pouch projecting forwards to fill up the space normally occupied by these glands. At the lower border of these glands and areolar tissue the œsophagus passes behind the upper border of the left auricle. The distance between the upper border of the auricle and the bifurcation of the trachea is about 2 cm. In pathological cases the auricle may enlarge and occupy the whole bifurcation angle,[2] and may displace the bronchi (especially the left) upwards, so that the angle at which they leave the trachea approaches a right angle.

The right pulmonary artery runs across from left to right anterior to the left bronchus, the bifurcation glands, and the right bronchus; its course is horizontal, and the pericardium covers its lower half. At every point the artery is separated from the œsophagus by a distance about equal to the width of the main bronchi. The flow of blood in the part of the artery in front of the left bronchus is nearly directly backwards, and this will cause maximum pulsation at the point of contact with this bronchus.

Parkinson and Bedford described three impressions on the œsophagus: the aortic, "the pulmonary artery," and the left auricular. The second impression they supposed to be caused, in the main, by the right pulmonary artery in direct relation below the bifurcation glands. This relation I believe not to exist, for, as described above, the two structures are separated by the bronchus, glands, and areolar tissue. Further, the level of the second curve is higher up in the mediastinum than described by them—so much so that, as they remarked, the aortic and pulmonary impressions may run together forming one curve. The relations of these two arteries to the left bronchus are intimate; the aorta arching closely above it, sometimes forming an impression on the trachea just above the bifurcation, and then descending behind it, while the right pulmonary artery is in contact with it in front.

I believe, therefore, that the pulmonary artery impression is made by the left bronchus and to a small extent by the glands of the bifurcation of the trachea, these structures being pressed into the œsophagus by an enlarged pulmonary artery.

In radiograms taken at the appropriate angle, which is generally in the first oblique position, after a barium swallow, it will be found that the clear area representing the bronchus always lies between the dark circle of the pulmonary artery and the œsophagus. The size of this clear area may be decreased by altering the angle at which the film is taken, and thus the relation between the structures may be obscured.

Figs. I. and II. (on Plate) show the great vessels and the œsophagus of a fœtus injected with a barium emulsion, some of which has escaped into the pericardium; in Fig. I. the aortic impression on the œsophagus may be seen, whilst close below is the right pulmonary artery. Fig. II. is an oblique view, the fœtus having its right back against the screen. Here may be seen the arch of the aorta, the ductus arteriosus, and the right pulmonary artery. Fig. III. is from a case of mitral stenosis; the second impression shows here with the bronchus and pulmonary artery in line in front of it. Fig. IV. is from a case of advanced emphysema; here the first and second impressions form one curve at the lower end of which are the bronchus and pulmonary artery.

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EVIPAN:
AN INTRAVENOUS ANÆSTHETIC *

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AND

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Evipan is a new intravenous general anæsthetic or basal narcotic which we have used during the last four months. It was introduced to us by Bayer Products, Ltd., but as at the time a sufficient supply was not forthcoming, one of us (A. L. A.) was fortunate in obtaining 100 ampoules whilst on the continent. It is with these ampoules that our 100 cases have been operated upon.

Chemistry.—Evipan-sodium is the sodium salt of N-methyl-C-C-cyclo-hexenyl-methyl barbituric acid, which dissolves freely in water, but only solutions in non-aqueous organic vehicles are stable. It is prepared either in the concentrated 33⅓ per cent. solution, which must be diluted with water shortly before use; or in a crystalline form, which must be dissolved in sterile distilled water, in either case to form a 10 per cent. solution.

The *pharmacology* of this drug has been carefully worked out and published in several German papers, and we find that all the stages of general anæsthesia take place in a few seconds, when the drug is injected intravenously into the human subject.

USES

(1) As a *basal narcotic.* Complete unconsciousness may be obtained with the patient still in his bed

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* The report of the Anæsthetics Committee of the Medical Research Council upon this drug will be found upon p. 43.

by using 3·0 to 5·0 c.cm. of evipan intravenously. The patient becomes unconscious in from 14 to 15 seconds, and thereafter any general anæsthetic may be used. We have not employed evipan as a basal narcotic, preferring our already standardised use of omnopon and scopolamine.

(2) As a general anæsthetic for *minor operations*. In the out-patient department we have used from 2·0 to 3·5 c.cm. of evipan, giving from three to five minutes' complete anæsthesia, and allowing ample time for dental extraction or extractions, opening of whitlows, abscesses, removal of sections for biopsy, setting of fractures, removal of nails, and similar minor operations.

(3) As a general anæsthetic for *short major operations*—e.g., appendicectomy, tonsillectomy, empyema, hæmorrhoids, and fistulæ—in fact, any operation not requiring more than from 20 to 30 minutes' general anæsthesia. We found in our first ten cases that evipan alone as a general anæsthetic was unsatisfactory after the first ten minutes or so. We then began to use our standardised basal narcotic of Roche's omnopon, gr. ⅔, scopolamine gr. 1/150, given one hour before the operation, and then found that the ordinary dose of 8·0 to 11·0 c.cm. of evipan in 10 per cent. solution produced a smooth and perfect anæsthesia, lasting from 20 to 35 minutes, and sometimes even longer.

(4) For *more prolonged major operations*. On three occasions where the operation was known to require more than half an hour, we have given a second intravenous injection of evipan 20 minutes after the first, with complete and satisfactory anæsthesia lasting for an hour to an hour and a quarter.

AFTER-EFFECTS

Where 2 or 3 c.cm. have been injected for a minor operation in the out-patient department, the patient is conscious in four or five minutes, and 15 minutes later has put on his clothes and walked home.

All cases operated upon in the in-patient theatre, with the preliminary standard premedication, have enjoyed a peaceful sleep for three to five hours, awakened, partaken of nourishment, and frequently slept again for several hours. Only on three occasions has there been any restlessness lasting for a few minutes to about an hour.

Immediately after the administration of evipan the jaw and tongue become relaxed, and care must be taken that a satisfactory airway is maintained. There is no doubt that, for a moment or two, there is definite diminution of activity of the respiratory centre, and we must stress that this should be watched, especially with older and more feeble patients. Except for this in two patients, there has been no cause for any anxiety, either on the operating table or after the patient has returned to bed.

At the commencement of our series the blood pressure of patients before, during, and after the injection of evipan was noted. It was found to drop rapidly about 20 per cent., both systolic and diastolic, but returned to normal in an equal space of time. The pulse-rate was found to rise to an equal degree, but again rapidly returned to normal.

Complete biochemical examinations were carried out on 30 cases before and after the use of evipan. In no case was any alteration in blood-urea, blood-sugar, urine, or fæces determined, up to 72 hours after the operation. These reactions were kindly carried out by pathologists at the various hospitals where we have been using this drug. In no case was anything found to show that evipan had any deleterious effect on any organ.

TECHNIQUE

Our technique has been: injection of one Roche's ampoule, omnopon gr. ⅔, scopolamine gr. 1/150, one hour before operation, for the average adult, with half that dose under the age of 16 or over the age of 70. The patient is in a drowsy state when placed on the operation table, and we have found it preferable to have everything ready for the operation before the injection is given. The injection is prepared, the solution being carefully mixed in a 10 c.cm. syringe, and given into the median basilic vein with the usual aseptic precautions. The first 2 or 3 c.cm. are given fairly quickly, with then a pause of 15 to 30 seconds, at the end of which time the patient is usually fast asleep. According to the estimated length of the contemplated operation, a further number of cubic centimetres are given. We have found that it is not necessary to take into consideration the weight of the patient, but we have used 2·0 to 3·0 c.cm. on infants and small children, and the maximum dose of 11·0 c.cm. for the average healthy adult for major operations. We would advise, however, that anyone using this drug should refer to Messrs. Bayers' table of weight until they have become accustomed to the use of this drug.

It has been noticed, occasionally, after the first few cubic centimetres have been injected that slight tremors may occur. These usually disappear in a few seconds, and the patient then remains quiescent, with normal pulse and respiration. It has been noticed where the dose has been insufficient that the patient has been resistant, although still quite unconscious.

RESULTS AND CONCLUSIONS

As already stated we have now used evipan in 100 cases (27 at the Cancer Hospital, 21 at the Gordon Hospital, 24 at the Princess Beatrice Hospital, 16 at the Woolwich Memorial Hospital, 3 in other hospitals, and 9 in private practice. Our clinical experience is as follows:—

1. *Minor operations on out-patients.*—Dose, 2 to 3 c.cm.; 8 cases (sections for biopsy, extraction of teeth, removal of toenails, &c.).
2. *Endoscopic examinations.*—Œsophagoscopies and bronchoscopies: dose, 7 to 11 c.cm.; 14 cases, including insertion of radium and removal of foreign body. Cystoscopies, ureteric catheterisations, and cystodiathermy in males: dose, 10 to 11 c.cm.; 5 cases.
3. *Rectal operations.*—Sigmoidoscopy, pectenotomy, and ligature of hæmorrhoids: dose, 10 to 11 c.cm.; 24 cases. Operations for fistula: dose, 10 to 11 c.cm.; 5 cases; one early case supplemented with gas-and-oxygen.
4. *Gynæcological.*—Dilatation and curettage with insertion of radium: dose, 7 to 10 c.cm.; 5 cases.
5. *Intra-oral operations.*—Tonsillectomy: 10 cases. Diathermy: 2 cases. Osteomyelitis maxilla; 1 case. Dental cyst: 1 case. Epulis: 1. Dose: 5 to 11 c.cm.
6. *Breast.*—Partial mammectomy: dose, 10 to 11 c.cm.; 4 cases.
7. *Laparotomies.*—Appendicectomy, 2 cases. Presacral sympathectomy, 1 case. Nephrectomy, 1 case. For undescended testis, 3 cases. Dose: 11 c.cm. Bilateral inguinal hernia, with fascial graft, 2 cases. Both these cases had a second administration 20 minutes after the first, one operation lasting one hour, one an hour and ten minutes. Empyema, 1; dose, 11 c.cm.
8. *Miscellaneous.*—10 cases.

On six occasions evipan was used again for the second or third stages of various operations, and on three occasions there was a double administration for the same operation. Of the first ten patients, who had no preliminary omnopon and scopolamine, three needed supplementary gas-and-oxygen before the end of the operation. At no time was any shock noticed during or after the operation. On two occasions, where a little leakage occurred around the vein, no harmful effects were noticed.

In our considered opinion evipan is a useful addition to the surgical armamentarium, provided reasonable precautions be taken. The drug should never be used single-handed, since it is essential that the patient's airway should be continuously maintained. Moreover, in case of respiratory embarrassment we always have carbon dioxide and oxygen readily available, together with coramine and lobeline. Evipan is not, we believe, suitable for feeble or toxæmic patients, or those with cardiac or respiratory failure. As there is evidence of its detoxication by the liver, it should not be given to patients with jaundice. Until the drug has been more widely used, we feel that it should be administered only by an expert anæsthetist who will not only be able to maintain the airway and apply restoratives if necessary, but will also be ready to give a general anæsthetic should the operation take longer than is expected.

CONGENITAL CLUB-FOOT:

AN ANALYSIS OF THE DEFORMITY AND THE PRINCIPLES OF ITS TREATMENT

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Congenital deformities of the feet are common, 7 per cent. of congenital deformities being comprised by talipes equino-varus.[1] As there is one case of club-foot in each 1000 births, there are some 7000 cases of club-foot amongst the population of South Africa. This paper is only concerned with congenital talipes equino-varus. The object of adding to the voluminous literature of the subject is to formulate a definite and simple plan of treatment. The practitioner confronted with a case of this nature is bewildered by the variety of the advice offered by the various authorities, and it may be difficult to decide on a plan of campaign. Furthermore, and this is the burden of this thesis, club-foot should be treated and treated correctly by the doctor in general practice. *It must be understood that we are talking* of club-foot in the new-born child. Once the patient is even a few months old I think the case falls within the province of those who have extensive experience.

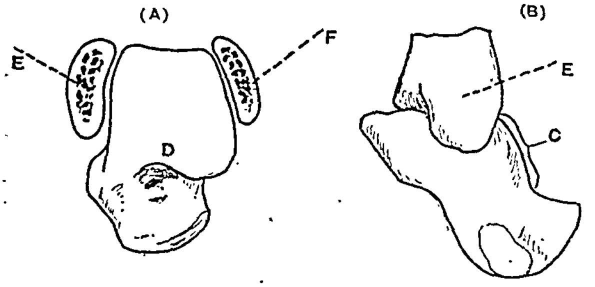

FIG. 1.—(A) shows the upper articular surface of the talus lying in the socket formed by the malleoli. Note that the surface is broader in front. (B) *shows* the ankle-joint from the inner side in a case of club-foot. The bracketed area, C, is the part of the upper articular surface of the talus which is displaced from its mortice owing to the plantar flexion of the talus. This is the area of bone which may offer great resistance to replacement. D = upper articular surface of talus ; E = medial malleolus; F = lateral malleolus.

The statistics of results of treatment of club-foot are very bad. It can be stated confidently that 95 per cent. of these cases will have perfect feet if correctly treated from birth, and such treatment is within the scope of the general practitioner. Why then does one see so many older children with feet which cannot possibly be cured even by the surgeon? One reason is that many parents are too sorry for their children to subject them to the discomfort of treatment, or they have been told the foot will come right as the child grows up. Another reason is that the average doctor has not been instructed in the principles of treatment, and the treatment necessarily fails. To obtain this understanding it is essential to be able to split the deformity into its component elements, so that each element may be separately and adequately dealt with.

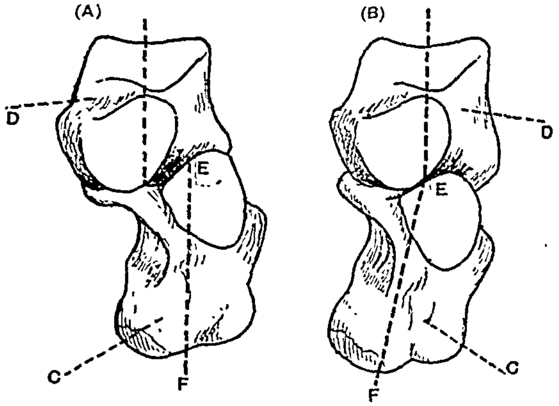

FIG. 2.—(A) shows the normal position of the calcaneus in relation to the talus. Observe that the axes of the two bones are parallel, though the calcaneus is lateral to the talus. (B) shows the relation of calcaneus to talus in talipes equino-varus. The calcaneus has moved medially as a whole so that the lower end of the axis of the talus meets the upper *end of the axis of the calcaneus, but the calcaneus has rotated* inwards as shown by the obliquity of the line EF. This is inversion of the calcaneus. The axes of the bones are represented by dotted lines. C = calcaneus ; D = talus.

AN ANALYSIS OF THE DEFORMITY

The foot may be divided into the hind foot and the fore foot. The hind foot comprises the talus (astragalus) and the calcaneus (os calcis). The talus is perched on top of the calcaneus or heel-bone, and is received into a three-sided box formed by the lower ends of tibia and fibula. This box is narrower behind than in front, the articular surface of the talus being of corresponding shape. As the talus is bent towards the ground (plantar flexed) in club-foot, it may "forfeit the right of domicile"—i.e., the wide anterior part of the bone may not be returnable to its mortice because of lack of room—this is *difficulty in reduction No. 1.* (Fig. 1.) The head and neck of the talus are bent inwards. The bony prominence felt on the dorsum of the foot just in front of the ankle is the body of the bone which we have just referred to as being displaced forward from its "box." Beneath the talus the calcaneus is situated. The two bones articulate at the sub-taloid joint, a joint of vast surgical importance particularly in talipes. The calcaneus is bent towards the ground like the talus, and is rotated *in* round its own long axis at this joint, and this inward rotation or inversion *must* be corrected in treatment. This is *difficulty No. 2.* (Fig. 2.) The heel is pulled up by the tendo Achillis. This is *difficulty No. 3.* In front of the two bones forming the hind foot is the fore foot articulating with the front end of the talus through the navicular (scaphoid) and with the front end of the calcaneus through the cuboid. Thus are formed two separate joints, talo-calcaneo-navicular and calcaneo-cuboid. (Fig. 3.) These joints are spoken of collectively as the medio-tarsal or mid-tarsal joint. The inner component—talo-calcaneo-navicular—is much the more important joint, and as may be seen on the figure, it has been aptly compared to the hip-joint,[2] both being ball-and-socket joints. At the medio-tarsal joint there occurs in talipes equino-varus a movement of the fore foot inwards on the hind foot on a vertical axis passing through the medio-tarsal joint. (Fig. 4.) There is no *rotation* in this element of the deformity. It is as though you could move your fore foot inwards flat on the floor in such a position that the toes approached towards the heel. This is adduction. This is *difficulty No. 4.* The next element of the deformity is exactly the same as that which afflicts the calcaneus, the fore foot is rotated inwards around its long axis so that the sole looks inwards: this is inversion and is *difficulty No. 5.* Lastly, the fore foot is bent towards the ground at the medio-tarsal joint. (Fig. 5.) Observe, therefore, that the talus is flexed towards the ground, and so is the calcaneus and the fore foot. The calcaneus is rotated in, and so is the forefoot. It is generally said that the tibia is rotated in—i.e., twisted inwards in its lower portion. This factor may with advantage be forgotten.

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[1] Jones, R., and Lovett, R. W.: *Orthopædic Surgery*, 2nd edition, 1929, p. 614.

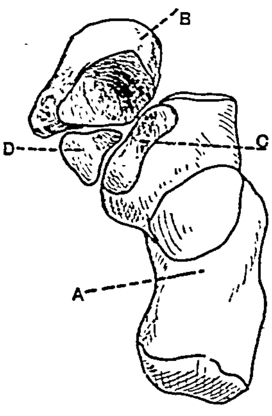

FIG. 3.—The ball-and-socket joint for the reception of the head of the talus. The socket is made up of the concavity of the navicular, the sustentaculum tali, and the spring ligament. A = calcaneus; B = navicular; C = sustentaculum tali; D = spring ligament.

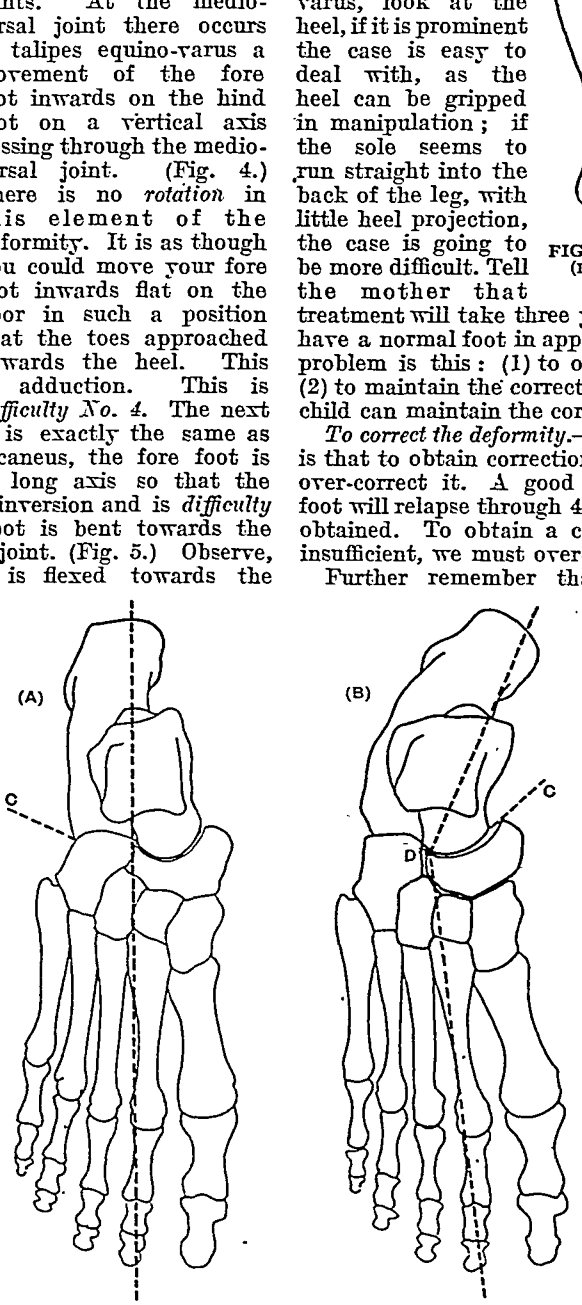

FIG. 4.—Illustrating adduction of the foot. (A) shows the long axis of the normal resting foot. (B) shows the adduction of the fore foot in talipes. Observe that the long axis of the foot is angulated at the medio-tarsal point, the fore foot moving inward round a vertical axis passing through this joint at D. C = medio-tarsal joint.

There are three other types of congenital talipes equino-varus. These cannot be cured:—

1. Arthrogryphosis congenita multiplex—a maldevelopment of lower limbs and upper limbs, with very severe fixed club-feet, which no amount of treatment will cure.
2. Club-foot dependent on defects of the leg bones and parts of the foot.
3. Club-foot secondary to spina bifida and dependent on a neurological defect.

TREATMENT

Armed with these somewhat dull facts we are ready to deal with the new-born child that we are confronted with. The treatment should begin in the first week of life. The feet are examined; the spine is palpated for possible spina bifida, the shoulders and upper limbs are examined for defect such as club-hand, which would imply arthrogryphosis and a bad prognosis. Having satisfied ourselves that the case is one of simple equino-varus, look at the heel, if it is prominent the case is easy to deal with, as the heel can be gripped in manipulation; if the sole seems to run straight into the back of the leg, with little heel projection, the case is going to be more difficult. Tell the mother that treatment will take three years, but that the child will have a normal foot in appearance and function. The problem is this: (1) to over-correct the deformity; (2) to maintain the correction; (3) to ensure that the child can maintain the correction.

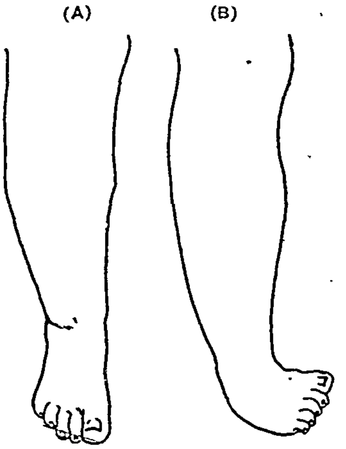

FIG. 5.—(A) shows the normal foot. (B) shows inversion of the foot.

To correct the deformity.—The essential fact to grasp is that to obtain correction of the deformity we must over-correct it. A good working rule is that the foot will relapse through 45 per cent. of the correction obtained. To obtain a correct position is therefore insufficient, we must over-correct.

Further remember that when manipulation is resorted to it is well to put the foot up in a position just short of the maximum obtained. Do not advise manipulation by the parents. We take many years to acquire this knowledge. It is unreasonable to expect the relatives to do so in a few minutes, besides stupidity, negligence, or fear of hurting the child are all disadvantages.

Correction by metal splint.—Obtain a piece of aluminium, 4 in. to 8 in. long and 1 in. broad, and flat, firm, but capable of being bent. Cover it with surgeon's lint, sewn on with a small amount of packing. This is to extend from the head of the fibula to ½ in. beyond the tip of the fifth toe. Fix the lower end first, hold the splint against the outer border of the foot, and put a piece of ¾ in. adhesive twice round foot and splint at the level of the metatarso-phalangeal joint. (Fig. 6.) Then approximate the other end of splint to side of leg. If it bends the foot out too much, for a beginning bend the splint slightly at the ankle-joint so that it is concave inwards, and fix it to the leg with strapping at its upper end. Bandage the splint on with an ordinary bandage. Repeat this procedure twice a week, bending the splint out a little each time till it is moderately concave *outwards*, by which time the foot will be straight instead of adducted at the medio-tarsal joint. *In about three months we will have* obtained the maximum benefit possible by this means. The equinus-flexion of foot towards the ground has not been affected at all by this treatment.

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[2] Brockman, E. P.: Congenital Club-foot, Bristol, 1930, p. 35.

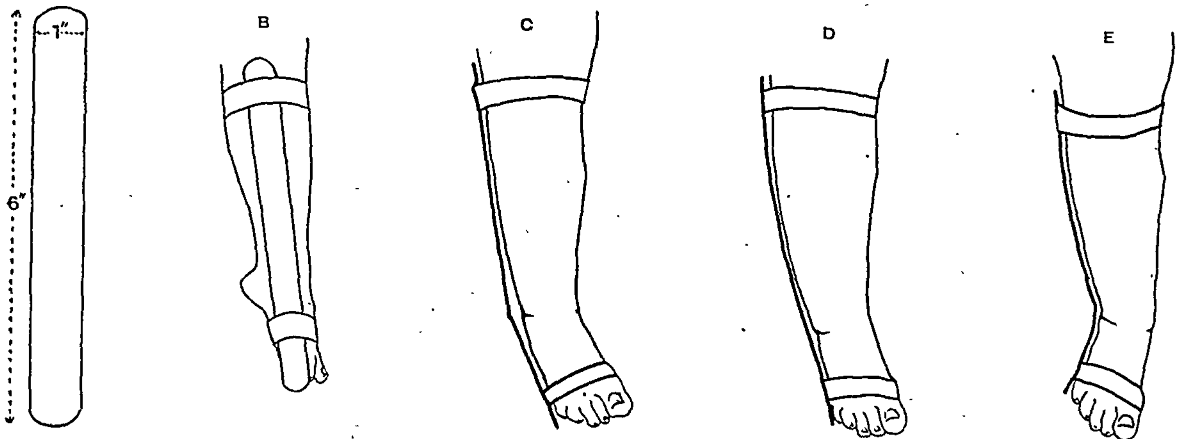

FIG. 6.—A = the splint; B = the splint applied; C = first application, splint concave inwards; D = later application, splint straight; E = splint convex inwards.

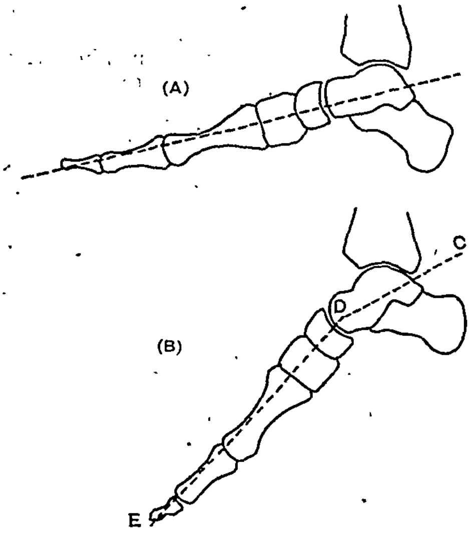

FIG. 7.—(A) shows the long axis of the normal foot. (B) shows the foot in talipes equino-varus. Observe the two comprise the plantar flexion: CD = flexion of talus at ankle-joint; DE = flexion of fore foot at medio-tarsal joint.

It is at this stage that resort is made to

Correction by manipulation and plaster.—The child is anæsthetised, requiring to be deeply under the anæsthetic. An assistant holds the knee in a semi-flexed position to prevent the manipulations spraining the lateral ligaments of the knee. The deformity is corrected according to a prescribed order:—

1. First correct the adduction of the fore foot.
2. Then correct the inversion of fore foot and calcaneus.
3. Lastly, correct the equinus. It has been indicated above that the equinus is made up of two distinct factors: (*a*) plantar flexion of fore foot on hind foot. This deformity has been aptly named plantaris by Brockman; (*b*) plantar flexion of hind foot—i.e., pulling up of the heel. (Fig. 7.)

Correction of adduction.—The outer border of the foot should be straight; in club-foot it is convex. *This is the most troublesome element of the deformity* to correct. It is difficult to obtain sufficient purchase to bend the fore foot outwards. At the age of 3–4 months it is much easier than in older children. One *hand fixes the hind foot and lower leg bones, with the* other the fore foot is grasped and forced outwards. Remember that even at this age correction of deformity requires the use of all the force an adult can use. If the adduction is readily over-corrected it is fortunate. Often the use of an orthopædic wedge is necessary. The foot is placed with its outer border resting on and at right angles to the sharp edge of the wedge, which is padded with wool. The edge of the wedge is just behind the base of the fifth metatarsal (medio-tarsal joint). The foot is now straightened by forcing the fore foot down on one side and the hind foot on the other side, each being held in one hand. (Fig. 8.)

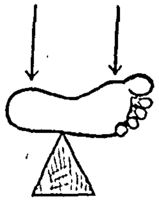

FIG. 8.—The foot in position on the wedge.

Correction of varus.—The term varus implies a combination of adduction and inversion. The adduction having been dealt with, we proceed to tackle the inversion. The heel and ankle region is grasped with one hand. This for a dual purpose:—

(*a*) To protect the lower end of the tibia. You may break any bone in the foot during your manipulation with no untoward issue, except the lower end of the tibia. This is a catastrophe. It may produce a lasting deformity, and in any event the correction of the deformity must be *left over for four weeks to obtain healing of the fracture.*

(*b*) The hand supporting the heel presses the calcaneus outwards to correct the inversion existing here. This is *a most important, frequently neglected part of the treatment.* If the rotation of the calcaneus is not rectified, the foot will assuredly relapse.

The other hand *takes a firm grip of the fore foot and* rotates it out on its own long axis so that the sole looks outwards. This is greatly simplified by the use of a Thomas' wrench in older cases. In the type of case we are *talking of it is unnecessary. In fact no* apparatus is needed, as one can improvise a wedge by using the sharp edge of a box.

Correction of equinus.—Remember constantly that equinus means more than a mere pulling up of the heel, it means also plantar flexion of the fore foot on the hind foot. If you grasp the fore foot and force it up, you are correcting the plantaris only; you are not dealing with the plantar flexion of the calcaneus. Unless the fore end of the latter is pushed up, your patient will be liable to a very resistant type of flat-foot in later life (Forrester-Brown). The best means of dealing with the equinus is to lay the palm and hand flat along the patient's foot from heel to toes (the other hand supporting the ankle region) and to force the whole foot up. This deals with both factors constituting the equinus deformity.

The manipulation is now complete. You have had in mind the principle that every effort should be made to over-correct the deformity at the first seance (Jones). If the efforts have fallen short of this, they may need to be repeated several times. In the infant of a few months the correction can often be done at one sitting. The limb from mid-thigh to toes is now encased in plaster. (Fig. 9.)

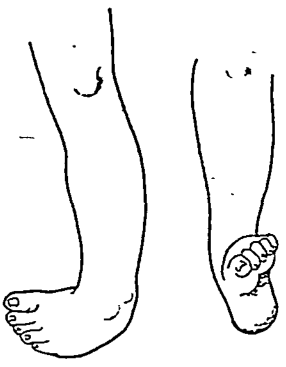

FIG. 9.—The overcorrected position (which is maintained by plaster-of-Paris) is seen in the right hand drawing. Compare this with the left hand figure which portrays the foot before treatment.

Application of plaster.—The limb is protected by wool, evenly applied and not too thick from mid-thigh to beyond the toes. The knee is flexed about 60°, otherwise the plaster will often slip owing to the podgy, conical shape of the limb in plump infants. The foot is held in the over-corrected position by an assistant. The importance of this person's duty is not realised. The assistant holding the foot must know enough about the elements comprising the deformity to be able to understand that he has to secure abduction, eversion, and dorsiflexion. It follows necessarily that, with the rarest exceptions, only a doctor well informed in regard to talipes can hold the foot in the over-corrected position. Unless this is done, obviously most of the correction obtained is going to be lost in applying the plaster. For this reason it is much better that the doctor hold the foot and the assistant apply the plaster under his direction. Use plaster 2 in. to 3 in. wide, and only 3 yards long. Do not pull the turns of the plaster tight, and apply it from without in, holding the foot in the correct position till the plaster is dry.

Dealing with the tendo Achillis.—It is only a few years since tenotomies of plantar fascia, &c., were a routine in the treatment of talipes. Tenotomy has no place in the modern treatment of the deformity with the solitary exception of the tendo Achillis. Never forget that this tendon is a valuable stay in your manipulations. It fixes the heel firmly and gives you a fixed point on which to work. Cut it and you destroy a valuable ally. It follows necessarily that you will guard the integrity of this structure until you have fully and completely over-corrected all but the equinus. You try to over-correct this at each manipulation. Often this succeeds. If it does not, then, and only then, do you deal with the tendo Achillis. In very young children it is sufficient to push a knife in under the skin and tenotomise the taut tendon. This may be done by the sliding method. We must remember that a tenotomised tendon retracts and is apt to lead to an unsightly "high calf" in after life, therefore it is always worth while doing an open lengthening so that you can control the extent of the retraction. Remember to sew the sheath separately. The tendon always re-establishes connexion between its divided ends whatever method of lengthening is used. After the division the foot may not go up sufficiently. This may be due to the posterior ligament of the ankle-joint holding it. This is an over-rated bar to reduction as the ligament is weak and it can be divided with no benefit whatsoever. The trouble is often due to the wide front end of the talus not having room to enter the ankle mortice. Forcible manipulation rectifies this, though it is never difficult in the type of case we are discussing.

Intervals between applications of plaster.—Once the plaster stage is reached, we reapply it each *four weeks*. At first the foot is manipulated on each occasion. Once efficient over-correction is obtained, the position must be maintained and only plaster can do this properly. It follows that a fresh plaster must be reapplied every month until the child can walk. I have had two cases of severe anterior bowing of the tibia owing to retentive plasters having been left on for too long. This is due to the fact that the position of the foot in the plaster puts a considerable torsion strain on the *growing* tibia, resulting in an unsightly bend disappointing to parent and doctor which requires the use of an osteoclast for its correction.

The only bad complications in the treatment of club-foot apart from failure to obtain over-correction are injury to the lower end of the tibia and bowing of the bone. Neither need occur.

Maintaining the correction.—Once the child begins to walk, the body-weight will tend to keep the foot in correct position. If the deformity has been thoroughly dealt with no apparatus whatsoever is necessary. Leg irons are a matter of history in the treatment of corrected club-foot. The outer side of the shoe may be elevated ¼ in. to increase the thrust on the outer side of the foot. A night splint made of plaster-of-Paris is worn when the child is in bed. It is merely the posterior half of a plaster cast applied with the foot in the over-corrected position.

Physiotherapeutics.—No massage can possibly approach in efficiency the active movements of a healthy child. Massage therefore has no place in the treatment of club-foot. The muscle on which the maintaining of the position of dorsiflexion in eversion is dependent is the extensor longus digitorum. It and that small offshoot called the peroneus tertius (a muscle peculiar to man) are the only muscles which can evert the foot in dorsiflexion. We are dependent entirely on this muscle to maintain the position. Therefore exercises to encourage its action represent the sole physiotherapeutic measure which is any use. No child of 18 months is going to pay much attention to learning an exercise, so that it is only between the ages of 2 and 3 that we are likely to achieve any result by exercises.

CONCLUSIONS

1. Simple congenital talipes equino-varus admits of almost 100 per cent. cure.

2. The treatment can and ought to be efficiently carried out by the family doctor.

3. To be efficient it must begin at birth, continue for three years, with a constant vigilance to detect relapse. The latter usually means incomplete correction.

4. Treatment consists of preliminary splintage followed by manipulation and plaster.

5. Tenotomies (except of the tendo Achillis), operations, and leg irons have no place in the modern treatment of cases of club-foot seen in infancy.

REVIEWS AND NOTICES OF BOOKS

Diseases of Infancy and Childhood

By LEONARD G. PARSONS, M.D., F.R.C.P., Professor of Diseases of Children in the University of Birmingham; Physician to the Children's Hospital and to the General Hospital, Birmingham; and SEYMOUR BARLING, C.M.G., F.R.C.S., Professor of Surgery in the University of Birmingham; Hon. Surgeon to the Children's Hospital, and to the General Hospital, Birmingham. London: Humphrey Milford, Oxford University Press. 1933. Two volumes. Pp. 1834. £4 4*s*.

IF we claim that the appearance of this great symposium on diseases of infancy and childhood is symptomatic of modern tendencies in medical thought and outlook, it is only fair to admit that in the development of pædiatrics as a specialised branch public opinion has led medical opinion. In the first of these two volumes is a short well-planned chapter, entitled the State and the Child, which shows that the intense interest in children, normal and abnormal, characteristic of the present age, first manifested itself in a number of scattered and often misguided sociological experiments. Medicine has been slow in taking the grave step of creating still another specialty, but of recent years the wisdom of differentiating the study of children's diseases has been proved, and there are now few general hospitals without departments staffed by specially equipped men established for dealing with the sick child. The literature of this important subject has hitherto taken the form of monographs or of text-books written by one physician or surgeon, perhaps with the collaboration of two or three of his colleagues. This work, with its imposing array of 46 contributors each dealing with that branch of the subject which he has made his own, is an innovation in pædiatric literature. It will not, of course, supplant smaller more individual works—such monuments of clinical acumen and literary style as Still's "Common Disorders of Childhood" will surely retain their popularity. But the specialty is developing rapidly over such a wide area that its records must keep pace, and the selection of experts here represented could hardly have been bettered.

This work follows in general structure the familiar lines of a modern text-book of medicine. The basis of the classification of diseases is largely regional, and disorders are grouped according to disorders of function—the nervous system, the respiratory system, the cardiovascular system, and so on being dealt with in their respective chapters. The result of the editorial collaboration between physician and surgeon is that the surgical aspect of the various lesions is given full consideration on the spot. Throughout the book stress is laid on prophylaxis. It is in the field of preventive medicine that much of the pædiatrician's most hopeful work must lie, and it is fitting that much space should be devoted to it here. Under this head may also be classed the chapters on growth and development, and on the management and feeding of normal infants with which the book opens; it is a weakness of the statistics of average growth that, as a rule, no information is given of the observations upon which they are based. The chapter on feeding of normal infants attempts to treat a controversial subject critically and comprehensively, and is more successful than much less succinct writing on this difficult theme. The section dealing with disorders of nutrition is distinguished by a masterly article on rickets. A disappointment here is the dismissal of the subject of dental caries with the words: "We are unable to express an opinion concerning . . . the relation of rickets to dental caries" (p. 272). In a book of this scope some discussion of May Mellanby's observations and of the arguments for and against the association between vitamin-D deficiency and dental caries might have been expected. For those who are not specialists of considerable experience the chapter on peculiarities of disease in the child will be found very useful, and we are glad to note an emphatic statement that pulmonary tuberculosis is a rare disease in childhood. On p. 704 begins the clearest classification we have yet seen of that confused medley of conditions grouped under the name of infantilism. Much of Section 17 is pure orthopædics, but is not out of place here, and gains rather than loses by the necessary compression. In the second volume a chapter on radiography in diagnosis finds a place, and is illustrated by some fine plates.

The production of these volumes is of a high standard. The print is excellent, and the paper, though thin, is opaque, which cannot always be said of English text-books. The book is unique in the English literature of pædiatrics, and should gain a wide and appreciative public.

The Pelvis in Obstetrics

By JULIUS JARCHO, M.D., F.A.C.S., Consulting Gynecologist, Hastings Hillside Hospital; Attending Obstetrician and Gynecologist, Sydenham Hospital. New York: Paul B. Hoeber. 1933. Pp. 365. $6.

THE importance of accurate pelvimetry in antenatal examination has of late been somewhat neglected. It is rare to find this aspect of obstetrics treated adequately in a text-book written in English as it is here. Dr. Jarcho devotes a long chapter to the normal female pelvis, and has collected numerous statistical data showing the variation of pelvic measurements in the different races of the world. The abnormal pelvis is not treated so fully; more information might have been supplied about the effect of different types of contraction on the course of pregnancy and labour. The incidence of contracted pelvis in various countries is noted, and treatment by the Walcher position, induction of premature labour, and Cæsarean section are discussed. In the chapters on external and internal pelvimetry statistics are used to show to what extent variation of a measurement from the normal can be taken as indicating internal pelvic contraction. There is some confusion, in the description and statistics, about the definition of the term "conjugata vera," which should be restricted to mean the measurement from the sacral promontory to the nearest point on the back of the symphysis pubis. The direct measurement of the fœtal head in utero is described, and methods of comparing the fœtal head and the pelvis are fully discussed. Two chapters are given to X ray examination, and the account of technique is careful and thorough. In this country X ray pelvimetry and cephalometry are very little used because special methods are necessary to eliminate the effect of distortion seen in the film. When the X ray photograph of the pelvis has been taken the patient is moved away and, without altering the position of the X ray tube and film, a centimetre scale is placed at the level formerly occupied by the pelvic brim, and a second exposure is made on the same film. The actual measurements at this level can then be read off directly by the use of the scale. The fœtal head can similarly be measured by exposing the scale at the level which it occupied. X ray measurement is particularly important in certain cases, such as transverse contraction at the brim, where the ordinary external and internal measurements may be within the limits of normality.

This book is well illustrated and has an extensive bibliography.

Recent Advances in Radium

By W. Roy Ward, M.B., B.S., M.R.C.S., Medical Director and Surgeon to the Radium Institute, London; and A. J. Durden Smith, M.B., B.S., M.R.C.S., Surgeon to the Radium Institute. London: J. and A. Churchill. 1933. Pp. 324. 21s.

The authors of this book have set themselves a very difficult task; the field which they have to cover is enormous, and it is inevitable that there should be omissions and that dogmatic statements should be made on subjects still open to question. This book is divided into three sections. Part I. deals with the scientific aspect of the problem, Part II. with the treatment of malignant disease, and Part III. with the use of radium in certain benign conditions. It is in Part I. that some weakness, due to the effort to condense into less than one hundred pages the consideration of all the general properties of radium, is most apparent. Although medical interest is naturally centred on the clinical side of the question, the importance of the principles on which therapy is founded cannot safely be under-estimated. The sections on general considerations and physics follow conventional lines; they are pleasantly written and easy to follow. Those on the action of radium and radiosensitivity are of great interest. The question of the importance of direct action on the tumour cell, as compared with the indirect action on the blood-vessels and fibrous tissue formation is discussed at some length and certain experimental work on which conclusions have been based is mentioned, but the essential relationship between the effects observed and tissue dosage is not made obvious. The summary of the methods devised to estimate dosage is clear and avoids controversy. The figures illustrating Stahel and Murdoch's method are not perhaps well chosen. Fig. 8 represents the isodose curves when the radium is placed directly on the part to be treated (h=0 cm.); Fig. 9 represents readings with the radium at a distance of 1 cm. (h=1 cm.); so that any attempt to use these figures for calculating dosage would result in a serious error. No mention is made of Sievert's condenser chambers, nor is the importance of the time factor in dosage discussed.

Part II. is devoted to a consideration of the various types of malignant disease in the treatment of which radium has a definite place. The experience gained at the Radium Institute, London, and the description of the methods in use there add greatly to the value of the section; and the recognition that surgery must play an important part in treatment provides a well-balanced discussion. The methods in use at the leading European and American clinics are described; those of the Fondation Curie, Paris, the Radiumhemmet, Stockholm, and the Memorial Hospital, New York, are regarded as the most important. Radium clinics, each having elaborated its own technique, are so numerous that selection of material must have been a matter of great difficulty. It has been well done. Space might, however, have been found in the chapter on cancer of the uterus for a note on the combination of heavy irradiation with radium and X rays, and the Schauta hysterectomy in Stoekel's, Adler's, and other clinics, and in the the chapter on cancer of the bladder for the results claimed by Gunsett of Strasbourg. So much work has been done by the authors in assembling the data that it seems a pity they have not presented the figures in the form of tables, in order to enable the reader easily to compare results obtained by different methods. The section devoted to such conditions as pitch warts (a very large number of which have been treated at the Radium Institute), nævi, and angiomata is of especial value, and the detailed instructions are welcome.

Some omissions and unwarranted dogmatic statements are inevitable in a summary which endeavours to cover so much ground, but as a collection of scattered information for the benefit of those practising radium therapy in the English-speaking countries the work will be widely appreciated.

St. George's, 1733–1933

By J. Blomfield, O.B.E., M.D. Published for St. George's Hospital by the Medici Society, 7, Grafton-street, London, W. 1933. Pp. 120. 5s.

The bicentenary commemorative history of St. George's Hospital, which was quoted in our leading columns last week, has appeared, and fills well the purposes for which it has been written—namely, to record the story of the institution up to date, and to interest the public further in its future destinies. Dr. Blomfield divides his subject into four sections each covering 50 years. The tale of the first section is of the foundation and early expansion of the institution; the second 50 years are marked by consolidation of effort and the rise in scientific fame associated especially with the work of John Hunter. During the third 50 years, a period of reconstruction, occur the discovery of anæsthesia, the rise of antiseptic surgery, the introduction of skilled and trained nursing, and the vast development in medical education associated with scientific progress in every field. During this period the school of anatomy and medicine adjoining the hospital, "Lane's school," where many of the students received their training, was closed, while, also, the premises of the medical school proper, situated in Kinnerton-street, were given up. Henceforth the education of the students, apart from their clinical training, was conducted in buildings attached to the hospital. The last section, bringing the book up to date, records more particularly the advances in specialisation which have been the distinguishing mark of recent years in all institutional treatment of the sick.

In each section of the book Dr. Blomfield provides a running commentary upon the life of the hospital, illustrated by the characters and performances of the more prominent members of the staff. These little biographies, in spite of their necessary compression, tell the necessary things about the dead leaders—they are gracefully written, generally kind, and often amusing. In each section also the material developments of the hospital are described, and so from two aspects and over a period of 200 years we get a vivid picture of hospital life in London. A feature of the book is the charming illustrations, mostly reproduced from prints lent by Dr. H. R. D. Spitta. Such pictures as that of "The Turnpike at Hyde

Park Corner 1786," "Hyde Park Corner 1800," "The Entrance to Hyde Park Corner 1813," and "Views of Hyde Park Corner 1828 and 1836" will puzzle many who know the present aspect of one of the most frequented centres of London. Of course to remember the original site of the Wellington arch is not a proof of senility, yet the recollection of Hyde Park Corner 50 years or so ago is dim with most people.

The publicity which has been given to the fact that the hospital is actually contemplating early rebuilding should not have an unfortunate effect by deterring students from entrance, for the public service of a hospital can be maintained throughout the stage of transformation, infinite though the trouble may be. Dr. Blomfield's book shows that this situation was met successfully at St. George's Hospital in its early days, and it can be met again.

The Tides of Life

By R. G. Hoskins, Ph.D., M.D., Director of Research, Memorial Foundation for Neuro-Endocrine Research, Research Associate in Physiology, Harvard Medical School. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1933. Pp. 352. 15*s.*

It is not quite clear for what class of reader this book is intended. From its rather popular title and the explanations of technical terms that Dr. Hoskins so frequently supplies, it would seem to be meant primarily for the instruction of an inquiring lay public. Whatever the intention, the result is a readable book, delightfully free from dogma, which sets out, in simple language and with moderation, the present state of our knowledge of the endocrine glands, and the devious paths by which that knowledge has been reached. Each gland is dealt with in a separate chapter, which traces historically the gradual evolution of the opinions held at the present time and the researches and discoveries that have led up to them. No attempt has been made to give an exhaustive account of all the investigations which have been made, but, as Dr. Hoskins says in his preface, he has "assumed the privilege of strolling through the literary gardens of his contemporaries, gathering at will." In this way he shows clearly just how far, by groping laborious stages, our real knowledge has been carried; he shows also—and this is no less valuable—the large gaps in it, and points out the lines along which further thought and research should be directed. Within the limits that the author has set himself, the monograph is extraordinarily complete. It should prove of value to the practitioner who wishes to bring his general knowledge of endocrinology up to date.

An Introduction to the Computation of Statistics

By Shepherd Dawson, M.A., D.Sc. London: University of London Press. 1933. Pp. 192. 10*s.* 6*d.*

In spite of the increased use of statistical methods amongst scientific workers of all types, one would imagine that the supply of text-books on the subject must be rapidly reaching saturation point. The last few years have seen the addition to the older established publications, such as Bowley's and Yule's text-books, of treatises ranging from the mathematical to the elementary, and varying widely in the methodological field they cover as well as in the type of scientific worker to which they are addressed. This latest recruit to the ranks aims at setting out briefly the actual processes of computing the more useful statistical constants, and reduces the discussion of the meanings of the values calculated, their limitations, and the underlying assumptions made to a minimum. It follows the usual and logical form of considering first the elements of tabulation and presentation, graphical as well as tabular, and then passing to the elementary constants of the frequency distribution, averages, dispersion, and skewness, while one-half of the book is devoted to the problems of sampling and the measurement of the significance of differences, and to the calculations of various forms of correlation coefficients. Each chapter includes a number of exercises on its subject matter.

There is not much that is new in the author's exposition though occasionally he has introduced some neat illustration or analogy to assist the reader to grasp the point—for example, in the change of origin in calculating the mean and standard deviation (p. 38), and in the pictorial presentation of the probable error of a mean (p. 98). His reversal of the usual order of the frequency distribution when written vertically seems merely liable to confuse, and to write every xy product in a correlation table is unnecessarily laborious without any compensating advantage. The book is well illustrated with examples fully worked out, and should prove a useful help to anyone who is in difficulties over the calculations of his statistical constants and is unable to digest the fuller discussion of their meaning to be found in other text-books.

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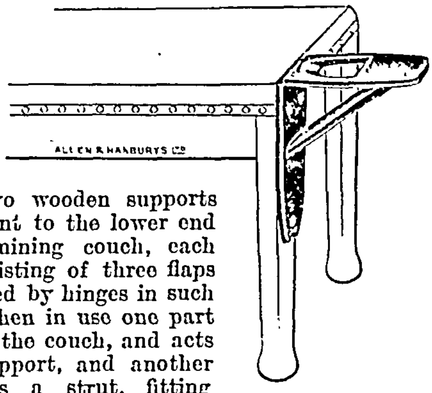

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See *The Medical Press and Circular*, April 27th, 1932, pp. 348–351 : Ambulatory Treatment of Fractures and Diseased Joints by the Hoefftcke Extension Splint.

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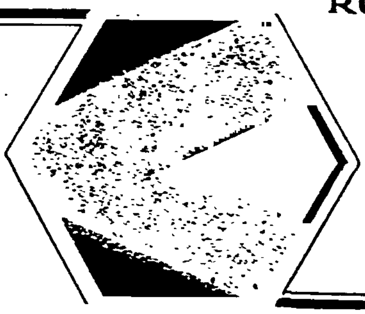

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THE LANCET

LONDON: SATURDAY, JULY 1, 1933

THE UNIVERSITY OF LONDON

WHO first said that there must be a University of London, being in any position to give importance to his words, is a matter of doubt, the honour having been claimed in several directions; but certainly five or six years before University College, London, came to life in Gower-street, both THOMAS CAMPBELL, the poet, who was a fine classical scholar, and the omniscient BROUGHAM had mooted the subject. At any rate, CAMPBELL'S scheme was taken up by BROUGHAM and JOSEPH HUME, economist and stalwart supporter of Catholic emancipation, while the poet himself alluded to the foundation of the University as the most important fact in his life. And now, nearly a hundred years after CAMPBELL'S death, HIS MAJESTY THE KING has laid the foundation-stone of central buildings for the University.

The history of the University during this considerable interval of virtually a homeless life has been a singular one, in that conflicting opinions as to its constitution, its policies, and its plans for development have been manifested over and over again, and yet the disputes, which have often been of an acrimonious quality, have not prevented academic progress. From its outset the University has been able to claim for the holders of its degrees a position second to none in the educational world, and to point to a steady and ever-increasing roll of graduates of the first distinction. The opportunity for the disputes lay in the constitution of the University. In theory this was a splendid one, for it designed to bring the attainment of a degree of high standing in all faculties within the reach of those who were able to satisfy the appropriate conditions, regardless of race or religion—a logical reaction to the restricting tests at Oxford and Cambridge. From the beginning a certain number of students received their training at two recognised colleges where the curriculum was standardised, but the number of students trained externally formed a great mass over the details of whose education the University exercised little supervision, the one thing needful for obtaining the degrees being that at appointed times and places the candidates should sit for and pass certain examinations. This situation made certain dissensions unavoidable. How they arose, and why the faculty of medicine was invariably and intimately involved, needs no re-telling, for every stage of the development of the University has been recorded profusely in a long story of commissions with different terms of reference, of assiduous work on the part of public men, of set-backs, and of triumphs over them. For unanimous effort was rendered difficult. To some the strengthening of the central organisation and the development of a topical character seemed the indicated road to progress, while to others this appeared to be a defaulting from the original conception. Such a fundamental cleavage affected material procedure, a fact which was reflected in the absence of an adequate central home for the University. A dignified building in Burlington-gardens was supplied by the State, but could not pretend to be much more than an examination hall, and the removal of the University to a section of the Imperial Institute only relieved the pressure of the situation, and this not too adequately. There was nothing which could be recognised as a focus of university life, or even as a visible symbol of its existence. Then a reconstitution of the University brought within its fold, in addition to the medical teaching schools, a large and mixed body of institutions of widely varying educational outlooks; and while many of these possessed their own domestic arrangements and machinery, the need for a central home for what was now the largest University in the world became obvious to everybody. But it was not until this need became public knowledge that the two great questions arose—where was that home to be, and where was the money to be found to bring it into existence? And until those questions were answered no beginning could be made.

The questions have now been splendidly answered, as the claims of the University of London, not only on the mother city, and not only on the empire, but on the whole thinking world, have become apparent. And the choice of the Bloomsbury site met this strong and far-reaching appeal in a wonderful manner, as a glance at the map on page 49 shows. For immediately surrounding the spot on which KING GEORGE has placed the foundation-stone of the new buildings are ranged already the centres of many important constituent activities; an original college of the University abuts, the British Museum stands on the southern border, the Record Office is near, and so are several of the most important medical schools, while all other bodies affiliated to the University will find their common home readily accessible. The site is an expression of that unity of endeavour which will conduce to the maintenance of the work of the University at its present enviable level, while providing full scope for the assured development. And on that site a magnificent outward expression of this unity will from to-day begin to rear its head.

THE VAGARIES OF THE COMMON COLD

A PARTICULARLY interesting field study of the "common cold" has recently been reported by J. H. PAUL and H. L. FREESE working under the auspices of the International Health Division of the Rockefeller Foundation.[1] A careful and detailed investigation has been made by them into the epidemiological and bacteriological characteristics over a period of approximately eleven months in a small isolated community in Spitsbergen. Longyear City, the scene of their activities, has a population of some 500 persons, the majority of the men being occupied in coal-mining; its shipping season is from three to five months in length, depending on ice conditions, and during the remainder of the year there are no contacts with the outside world. Apart from the common cold communicable diseases seem rare.

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[1] Amer. Jour. Hyg., 1933, xvii., 517.

During the period of observation the incidence of "common colds" was approximately one attack per person per year, an appreciably lower rate than has been reported by other workers for the temperate zone though not as low as that observed by Milam and Smillie[2] on a small tropical island in the West Indies. Distribution of the cases by weeks showed clearly that they were largely concentrated into an epidemic period following the resumption of steamer traffic with Norway. Within a month of the arrival of the first boat about 75 per cent. of the winter residents had suffered an attack, while it is estimated that 90 per cent. had been involved before the epidemic died out. Local history has it that these epidemics never break out before the ships start to arrive and that there is no summer on record where the community escaped infection, though dispensary data indicate that the attack-rate and the severity of the disease vary from year to year. In the months of isolation only occasional cases of acute respiratory infections were observed and several abrupt drops in temperature (from 20 to −10° F.) had no effect upon their prevalence. In fact no correlation could be established with any meteorological factors. The interesting point is that during the period of isolation occasional cases of "colds" occurred in every month but March, and yet no epidemic spread took place, though the explosive epidemic in May indicated that the community had by that time lost whatever immunity it had possessed. Paul and Freese suggest that perhaps this group of 500 persons was too small to permit the ætiological agent frequent enough transfers to retain its original potency. The steamers arriving in the summer, they observe, bring to the town not only the infective agent, but also a considerable number of susceptible persons. Once these persons cease to arrive there remains a community in which practically everyone has had one or more recent attacks. This, they suggest, may well be the critical period for the "virus," for only rarely will it find lodgment in a susceptible person. On the other hand the population of the town only rises in the summer by about 40 to 50 persons (not including tourists), and it might be doubted whether its composition with regard to susceptibles would vary sufficiently as to be so extremely effective in influencing epidemic spread. That it did not vary appreciably, between the period of isolation and the period of communication, in its nasopharyngeal flora was found by means of a special study of 140 persons, forming a fair cross-section of the population. The new arrivals of the summer of 1931 brought with them essentially the same nasopharyngeal flora as was found in the winter residents, the only exception being a slightly larger number of organisms of the Pfeiffer group. On the whole cultures from normal persons in Longyear City showed striking similarity to those obtained in the tropics and the temperate zone, the chief difference being that staphylococci and hæmolytic streptococci were virtually absent in the Spitsbergen population. Such observations are obviously consistent with the hypothesis that the final agent is a filtrable virus and that the bacterial flora played no important rôle in the initiation of the "common cold" epidemic.

In another investigation, carried out by J. A. Doull, V. A. Van Volkenburgh, N. B. Herman, and W. M. Gafafer of the clinical laboratory of the John J. Abel Fund for Research on the Common Cold,[3] very little support is found for the opinion that minor respiratory diseases are more frequent and more severe in persons having some objectively demonstrable pathological condition of the upper respiratory tract than in normal persons. Groups of persons were classified on otolaryngological examination as normal and abnormal with respect to tonsils, adenoids, breathing space, turbinates, and maxillary sinuses. The total attack-rates were remarkably uniform for normals and abnormals, and subdivision of the abnormals according to type of abnormality revealed no material differences. Equally little difference is to be observed in the relative severity of attacks. So far as confinement to bed and general aching may be taken as criteria, attacks among abnormals were of approximately the same severity as those among the normals. On the other hand, among children the average duration of attack was longer for those with each class of defect than for those who were recorded as normal, and the study points to an apparently greater frequency of productive cough in those with abnormal turbinates and maxillary sinuses. Exactly what are the clinical characteristics of minor upper respiratory attacks and their frequency was a question to which early attention was paid by workers under the John J. Abel Fund. A further report on this aspect of the problem has been made by Doull, Herman, and Gafafer in the same issue of the *American Journal of Hygiene*, the population under observation being adult volunteers, principally medical students of the Johns Hopkins University. The incidence, approximately three attacks per person per annum, agrees with that observed in the previous study of Baltimore families, reported by Van Volkenburgh and Frost, and the time distribution is strikingly similar—namely, minimal incidence during June and July, increasing to a sharp peak in September or October, to be followed by a succession of distinct epidemics. Fever was recorded in 21 per cent. of the total attacks and the severity of attack varied somewhat with season. Physical examination by an otolaryngologist in attacks occurring in 109 persons previously examined during health failed to reveal any characteristic pathological change. Emphasis is placed by the authors upon the fact that constitutional or toxic symptoms were present on the first day of illness in an appreciable proportion of attacks, which seems to indicate, as suggested by Van Volkenburgh and Frost, that these toxic symptoms are manifestations of the primary reaction between the body and an invading micro-organism rather than of a secondary reaction between the body and commensals which have acquired pathogenicity.

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[2] Jour. Exp. Med., 1931, liii., 733.

[3] Amer. Jour. Hyg., 1933, xvii., 743.

Such studies as these add considerably to our knowledge of the various aspects of the common cold—clinical, epidemiological, and bacteriological. Our lack of control of its incidence is emphasised in a recent study by L. Hoyle into the effects of treatment of acute coryza by autogenous vaccines.[4] Lack of success with stock vaccines has been reported by various workers—e.g., Ferguson, Davey, and Topley[5]—and Hoyle reports but little beneficial influence of autogenous vaccines on frequency of attack though severity of attack showed some signs of response. His vaccines all contained pneumococci, *B. influenzæ*, and "mouse pathogenic green streptococci," and if an autogenous strain was not available a stock strain was included; hæmolytic streptococci and Friedländer's bacillus were only included when autogenous strains were available. The cases treated were persons who normally suffered from unusually frequent and severe attacks of coryza and a course of three injections was given at weekly intervals. Of 67 cases from whom satisfactory records were obtained 28 derived no benefit whatever, in 23 the incidence was unaffected but the severity was reduced, while 16 reported a definite reduction in frequency and severity. With no measuring rod for severity it is quite possible that subjective factors may play some part in this result, and herein lies some of the value of the more precise knowledge of the normal clinical characteristics provided by the American workers. Only with the aid of such knowledge and with adequate control groups can we hope to evaluate the numerous methods of prevention and cure put forward from time to time.

DIAGNOSTIC METHODS IN LATE PREGNANCY

Severe obstructed labour is rare in modern obstetric practice. This is due to improvement in antenatal and intrapartum diagnosis and treatment. But disproportion of minor degree is still often unrecognised before the onset of labour, and mistakes in diagnosis of presentation are not uncommon even in antenatal clinics, where examination of a succession of cases under leisured conditions should establish a routine so automatic as to prevent an abnormality from escaping detection. In private practice, however, various factors, mostly traditional and psychological, make it more difficult for the doctor to ascertain whether the child's head is the presenting part, whether the occiput is to the front, and whether the fœtal head is of a size likely to pass through the pelvis without undue delay. The patient's friends are quick to resent any repetition of an examination undertaken near the end of pregnancy lest it may undermine the patient's confidence, and are prepared with a reassuring list of friends whose "fussy young doctors" attempted to frighten them but who produced wonderful children without all these elaborate examinations and tests. The danger of loss of confidence is not indeed negligible; there are women who are so unnerved by the fear of prolonged labour owing to disproportion that they plead for Cæsarean section though the necessity for this has never really been established. But it is a far greater risk to neglect any opportunity of ascertaining in advance the lie of the child and the chances of an unaided delivery; and a doctor who explains to the patient, when he is engaged to conduct a labour, that he will only undertake it if allowed to make such periodical examinations as he thinks necessary and that these do not imply abnormality, is not likely to have trouble later.

What should his routine be—to what extent should he rely on pelvimetry, abdominal palpation, vaginal examination, or X rays? Prof. J. C. Windeyer, in a copiously illustrated pamphlet on Diagnostic Methods Used during the Later Months of Pregnancy and during Labour,[1] gives practical advice which is more adapted to the need of the practitioner than the formal instruction set out in obstetric text-books, for he deals mainly with the information that can be gained from systematic abdominal palpation, and claims that if carefully performed this renders vaginal examination during labour unnecessary in 75 per cent. of cases. When it is necessary to determine the amount of dilatation of the os he advocates rectal examination, but this has certain disadvantages.[2] Vaginal examination should be made in every case of abnormal presentation or delayed engagement, just after the membranes have ruptured, to find out whether the cord has prolapsed; at other times abdominal palpation gives accurate information and is without risk to the mother. In abdominal palpation he lays stress on the importance of locating the anterior shoulder, which is felt near the midline in occipito-anterior positions, and about 3 in. away from it when the position is posterior. The anterior shoulder is 4 to 5 in. above the symphysis pubis before the head has engaged, and may be used in a trial labour as an indicator of the amount of descent of the head. In cases of posterior position anterior movement of the shoulder will show when rotation is taking place. Prof. Windeyer marks the position of the shoulder on the abdominal wall with Bonney's blue antiseptic paint,[3] which he imagines (p. 14) to be an alcoholic solution of methylene-blue. A method of determining by abdominal examination the oblique diameter of the brim in which the head is lying is described. Most English text-books do not teach either this or the method of following the progress of labour by palpation of the anterior shoulder; both should be of particular interest and importance to the practitioner, who often fears occipito-posterior presentations more than any other complications of labour. In palpation of the head to decide the amount of flexion he describes and figures the finger-tips, feeling the chin of the fœtus; but we doubt whether the chin can ever be felt, except in mento-anterior face or brow presentation. Prof. Windeyer has his own method of determining whether there is any disproportion between the fœtal head and the pelvic brim, depending chiefly on estimation of the amount of overlap. He does not ignore, we need hardly say, vaginal examination; he advocates Munro Kerr's method for use when there is a possibility of disproportion. That more information can be obtained from vaginal, or combined vaginal and abdominal examination is not doubted, but the risk involved makes it less and less used when the patient is near or at term.

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[4] Brit. Med. Jour., 1933, i., 996.

[5] Jour. of Hyg., 1927, xxvi., 98.

[1] Australasian Medical Publishing Co., Ltd., Sydney, 1933. Pp. 26. 1s. 6*d*.

[2] The Lancet, 1930, i., 35.

[3] 1 per cent. solution of a mixture of crystal violet and brilliant green (equal parts of each) in 35 per cent. rectified spirit. See Text-book of Gynæcological Surgery, Berkeley and Bonney, 2nd ed., London, 1920, p. 35.

There remain pelvimetry and X rays, and these have the same drawbacks—that they measure bone and not flesh. Pelvic measurement, though of less import than direct comparison of head and pelvis, is useful in order to obtain at the earliest possible moment an indication of the probable course of labour. Prof. Windeyer describes the usual external and internal measurements and advises that they should be estimated, if possible, early in pregnancy. He finds X ray examination rarely necessary, because the information can usually be obtained by other means, but he believes that with modern X ray methods one can accurately measure the brim of the pelvis and find out many other important details. Dr. Julius Jarcho, in a book reviewed on another page, while noting Windeyer's method of estimating disproportion, and his use of anterior shoulder of the fœtus, deals more fully with pelvic mensuration both by ordinary and radiographic methods. There has been much discussion on the value and limitations of X rays in pregnancy, some of the authors ignoring modern methods in which the apparent size of the shadows is corrected. Dr. W. C. Dansforth, writing in the most recent American work on obstetrics,[4] gives the following indications for the use of X rays in pregnancy: diagnosis of pregnancy, suspected multiple pregnancy, certain fœtal abnormalities, notably anencephalus and hydrocephalus, intrauterine fœtal death, face and brow positions, and post-maturity. He adds that X rays may be of use in helping the obstetrician to decide the question of immediate Cæsarean section or of test labour in cases of moderately contracted pelvis, and for the differentiation between pregnancy and pelvic tumour. Dr. Douglas Lindsay, writing in our columns a month ago,[5] would limit the usefulness of X rays in late pregnancy to the cases where obesity, a rigid or dense uterine musculature, an anterior thick placenta or excess of liquor amnii make palpation difficult; to the breech presentation in which, version having failed, the possibility of leg extension arises; to the determination of relative positions in multiple pregnancy; and to the confirmation of fœtal deformity. He quoted cases which illustrate the well-known danger of deducing disproportion from X ray findings in the absence of confirmatory evidence. Such evidence is obtainable by the introduction of scale measurements into X ray photographs. But as yet such complicated methods are useful mainly in research, and it will be long before the practitioner is in a position to subject all his patients to such an examination. Meanwhile the time-honoured method of abdominal palpation still holds as the most generally applicable and has the advantage that the patient accepts it without mental or physical disturbance, though to obtain really useful information the practitioner must develop a sensitivity of touch that only experience can give. If he desires to work out a technique of his own to this end, he will find in Prof. Windeyer's pamphlet a routine which could hardly be improved on.

THE ANÆMIAS

The present state of knowledge in regard to the anæmias was reviewed at the Summer Meeting of the Association of Clinical Pathologists, held in the pathological department of the Ancoats Hospital, Manchester, on Saturday, June 24th. Papers were read dealing with pernicious anæmia, anæmia of the so-called secondary types, and the anæmia of sprue, and evidence was produced that, thanks to the advances in knowledge in the last few years, all these anæmias are now definitely remediable. In the case of pernicious anæmia it is perhaps incorrect to speak of "cure," and the same applies, though to a lesser extent, in the case of some of the "secondary" anæmias; but in all it is now possible, once a correct diagnosis has been made, to restore the patient to health, and under suitable treatment to maintain him there. Correct diagnosis, however, can only be made by laboratory methods. In the discussion attention was drawn to the deplorable wastage resulting from failure both in correct diagnosis and the application of efficient treatment. This wastage involves material in the prescription of expensive preparations, particularly of liver, to unsuitable cases, and in the use of highly priced preparations of low potency; it involves human efficiency, since many patients remain in states of debility who with proper treatment might be in good health; and it involves human life from failure of correct diagnosis and appropriate and efficient treatment. It was pointed out that the National Health Insurance Acts are largely ineffective in remedying this wastage, owing to the fact that they provide for treatment only and make no provision for diagnosis or for the laboratory examinations necessary for the maintenance of health in cases of anæmia. At the conclusion of the meeting the following resolution was passed: "This Association is of the opinion that the failure to provide laboratory facilities for the examination of the blood in the case of patients under the National Health Insurance Acts suffering from or suspected to suffer from anæmia, is responsible for much wastage both of material and of human efficiency and life, and considers that centres should be established at which such laboratory service be available both for initial diagnosis and for the periodical examinations necessary to assure the maintenance of a sound state of health."

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[4] Obstetrics and Gynæcology. Edited by Prof. A. H. Curtis, M.D., Head of Department of Obstetrics and Gynecology, Northwestern University Medical School. Vol. I. London: W. B. Saunders Co., Ltd. 1933. Pp. 1165. 55s.

[5] The Lancet, May 20th, p. 1061.

ANNOTATIONS

SEASONAL GROWTH AND HUMAN HIBERNATION

It has been clearly shown that the rate of growth in children is far from being evenly spread over the calendar year. Constant seasonal variations have been demonstrated beyond doubt: thus weight is found to be added most quickly during the late summer and autumn, much more slowly during the winter, and most slowly of all in the spring and early summer. This cycle has been observed in children of various nationalities; in Copenhagen and in Stockholm, in Aberdeen and Berlin, in Boston and New York. For instance, to quote but one example, Orr and Clark[1] found that children in Scotland gained weight most rapidly during September, October, and November, and that the increase fell to a minimum during the spring and summer. Further confirmation is now provided in a careful study reported by Dr. Carroll E. Palmer, of the United States public health service.[2] Under the supervision of the medical officers of the service about 2500 native-born white children attending the elementary schools of Hagerstown were weighed monthly during the school years 1923 to 1928. The same maximum rates of average growth in weight during the autumn, the intermediate rates during the winter, and the minimum rates during the spring were observed in both sexes and, with remarkable constancy, for each yearly age-group from the sixth to the fifteenth year. There can be no doubt of the widespread existence of this cyclic phenomenon; the problem, therefore, lies in its interpretation. Palmer finds no indication in his data that it is in any way related, as has been suggested, to the presence or absence of infection or other sickness. Comparison of the seasonal curve of monthly growth-rates with the seasonal curve of sickness-incidence gives no evidence of correlation. On the other hand, it is shown by the observations of A. B. Fitt, in Melbourne,[3] that these variations in physiological activity must clearly be associated in some as yet unexplained manner with the seasonal changes. For the children of English stock in Melbourne also show their major growth in weight in the autumn months, that is in the autumn months of the southern hemisphere (April, May, and June), and a far slower rate of increase in the spring (October, November, and December). In March to July the average increase in weight each month was nearly 1 lb. as compared with only ½ lb. in August to December. As regards height, the position seems to be reversed, though the differences are on a much smaller scale. In explanation of his observations Fitt develops the somewhat bold hypothesis that man carries with him to-day "an energy-rhythm from previous glacial or other periods when hibernation, either complete or intermittent, similar to that of the polar bear, was absolutely essential to man's survival through a strenuous winter when food-supplies were very scant." The weight-activity in the growing child in the autumn corresponds with the life of many hibernating animals, which eat vigorously and put on much weight before sleeping through the winter. The height-activity, which is observed in the spring months, Fitt compares with the effective conception-rates for the Commonwealth which show a seasonal upward movement at the same period of the year. This, he suggests, is in reality the same rhythm, a rhythm of cell-reproduction, the one an increasing activity in cell-reproduction of a certain kind (tissues of bone, muscle, sinew, &c., going with increased stature), the other an increased cell-activity in relation to the sex-cells. Similarly he finds a correspondence between the seasonal curve of mental concentration in school-children and that of the suicide-rate, both showing a higher level towards the spring, and both, he argues, depending greatly on the same factor, the presence or absence of mental stability. On the basis of these seasonal trends he elaborates his thesis that the same energy-rhythm through which the life of hibernating animals runs remains with man as the main determining factor in his life's activities, whether of the growing child or the grown adult. The hibernating is a period of quieter activity, followed by "the rousing with the on-coming of spring, a rousing which is not merely a mechanical, physical process, but a highly emotional one as well, associated with the demands of the reproductive instinct, characterised by haste, restlessness, and a high measure of instability. . . . This phase continues through the spring and summer until later, with autumn or thereabouts, the consolidating, quieter phase sets in." The two phases of the year's rhythm thus represent qualitative as well as quantitative differences, and "shows man to be still a creature of the sun, dependent upon its course through the seasons. Complex, and inheriting an energy-rhythm which really means an internal division of labour, he can still (without serious detriment) reach his maximal achievement in any one field only when nature orders it." This is an interesting hypothesis which, hard as it is to prove or disprove, demands further study. Correlations in time—e.g., of reproduction and increase in height—are notoriously difficult to interpret; there are without doubt innumerable factors having their influence upon such variables as the birth- and suicide-rates. The problem is to isolate these influences, to see how far one basic common factor, as Fitt believes, can be held responsible for the seasonal rhythm in such apparently widely removed phenomena as the growth of children and the reproductive-, the suicide-, and the death-rates of their progenitors.

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[1] Orr, J. B., and Clark, M. L.: THE LANCET, 1930, ii., 365.

[2] U.S. Pub. Health Rep., 1933, xlviii., 211.

[3] Rep. 16th Meeting Australasian Assoc. for Advancement of Science, 1924, xvi., 704.

DIGITALIS IN ACUTE TOXÆMIAS

The cardiac failure of diphtheria is not usually treated with digitalis, because the electrocardiographic changes caused by poisoning with the drug are similar to those brought about by the toxin. It may be, however, that this question requires reconsideration in view of the work of F. F. Schwentker and W. W. Noel,[1] who distinguished between early cardiac failure, a result of the initial general toxæmia, and late cardiac failure, which is characterised in part by arrhythmias and heart-block due to irregularities in the process of repair of the conductive apparatus. On the value of digitalis in lobar pneumonia clinicians differ. G. N. Myers[2] carried out a number of experiments on guinea-pigs with results that seemed to show that it has a protective action against poisoning by diphtheria toxin, and he argued by analogy that it would give similar protection in the toxæmia of pneumonia. He found that daily subcutaneous injections of digitalis for several days before and after injection of diphtheria toxin protected guineapigs almost completely against doses of toxin in excess of those ordinarily lethal. But H. Gold, M. M. Klumpp, and T. D. Slagle[3] criticise these observations and conclusions. They have repeated the work on the cat, an animal which they believe to be more like man in its response to digitalis bodies than rodents. The experiments were carried out upon 59 cats, which were very carefully tended to ensure that their general health was good, and every care was taken to prevent deterioration of the sample of diphtheria toxin used. After suitable fresh dilution the toxin was as a rule injected intravenously, and the fact that a control group of cats received an identical dose of toxin at the same time as the digitalis series served as a check upon any possible loss of potency of the toxin. A tincture of digitalis which had given satisfactory therapeutic results in a large cardiac clinic was employed throughout. Its potency was 0·9 per cat unit and this was regarded as the average fatal dose. An examination of the survival periods and the degree of gross cardiac damage in the controls and test animals provided no evidence of antagonism of digitalis to toxin: pericardial and endocardial hæmorrhages were seen in the hearts of both groups, and the investigators conclude that digitalis not only fails to protect the cat against diphtheria toxin but in very large doses actually hastens its death. They think it is probable that the same is true in man. With regard to the use of digitalis in pneumonia, Gold and his co-workers draw attention to the findings of the pneumonia committee of the Bellevue Hospital in New York City recorded by J. Wyckoff and others.[4] In an intensive study of about 1000 cases of lobar pneumonia, these workers found no evidence that the routine use of digitalis is useful. They think that when auricular fibrillation or flutter occurs, as it does in less than 5 per cent. of cases of pneumonia, digitalis may perhaps save life, although patients frequently recover without it; but they believe that routine digitalis therapy in lobar pneumonia is dangerous.

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[1] Bull. Johns Hopkins Hosp., 1929, xlv., 276.

[2] THE LANCET, 1930, ii., 916; 1931, i., 1239; Jour. Pharm. and Exp. Therap., 1932, xliv., 191.

NATIONAL BABY WEEK

When the first Baby Week was held in 1917 its object was to advertise the fact—not then realised by the man in the street—that the greater proportion of infant mortality and morbidity was preventable. The immediate aim of the National Baby Week Council at that time was to promote administrative measures for the prevention of disease amongst children, and the late Lord Rhondda, who was then its chairman, was extremely active. Since those days the administrative scheme has been consolidated by a succession of Maternity and Child Welfare Acts, more especially the Act of 1918, and now there are only comparatively small gaps in the general scheme to be made good. Nevertheless the National Baby Week still serves as the occasion for drawing attention to certain special problems which remain urgent. In arranging the celebrations next week, the Council has taken the present financial difficulties into consideration and is concentrating on measures which it believes may be carried out without much monetary outlay. One of these is an attempt to find means for preparation for parenthood, and another is to enlist the help of fathers in the welfare movement, by the formation of "fathers' councils." These two problems are being put before the public in a variety of ways which it is hoped will secure general coöperation. One of the outstanding features of the week's arrangements is, of course, the annual Conference on Maternity and Child Welfare which, as we have already announced, is being held at the Friends House, Euston-road, London, from July 5th to 7th. This is the sixth of its kind to be organised by the National Association for the Prevention of Infant Mortality, a body which coöperates very closely with the National Baby Week Council, and the proceedings will include discussions on the scope and advancement of antenatal care, the protection of illegitimate children, and the health of the child in relation to its environment. The Council also encourages the spread of knowledge of mothercraft by offering challenge shields to the municipalities which organise the best Baby Week programme. Included in these municipal programmes are mothercraft exhibitions, competitions, lectures, film displays, and other educational expedients for the enlightenment of parents on upbringing of their children. Apart from these local events, the Council also offers prizes to school teachers, health workers, school-children, and others, for the best suggestions for useful propaganda work. Many different interests are thus attracted to the cause of child welfare.

POSTURAL VARIATIONS IN INTRACRANIAL PRESSURE

The intracranial pressure is by no means so simple a subject as was formerly supposed. The Munro-Kellie doctrine, as formulated over 100 years ago, ignored the presence of cerebro-spinal fluid within the cranium and argued that, as the latter was rigid and the brain incompressible, the blood volume inside the cranium must remain constant. Later it was recognised that variations in the quantity of intracranial blood might be compensated by variations in the intracranial cerebro-spinal fluid. But it is only within the last few years that it has been possible to find a physical formula which is applicable to this variation. Lewis H. Weed[1] has investigated the pressure and displacement of the cerebro-spinal fluid in cats, dogs, and monkeys, and has found that the elasticity of the cranial contents—that is, the quotient of the stress by the strain—was constant for the great majority of animals of the same kind and the same age in any position of the cerebro-spinal axis. He considered that this elasticity was chiefly a function of the blood-vessels and was closely related to vasomotor tone, since in animals examined immediately after death, when the blood is still fluid, it is found that the variations in pressure consequent on alterations of posture are nearly twice as great as in the living animal. It is this elasticity which makes the cerebro-spinal fluid pressure, as measured during lumbar puncture, much greater in the sitting than in the horizontal posture. If there were no elasticity the pressure in these two positions would be identical, whereas if the skull were easily compressible or the intracranial blood-vessels infinitely distensible, the fluid in the lumbar manometer would always rise above the level of the head. Actually the increase in the pressure reading on rising from the horizontal to the sitting posture is only one-third to one-quarter of the distance from the lumbar needle to the vertex of the brain. Thus the level of zero pressure in the cerebro-spinal system in the erect posture corresponds to the upper thoracic vertebræ.

This partial vacuum inside the skull in the erect posture has only been recognised of recent years, but it may be of considerable functional importance. Weed's observations suggest that its action on the blood-supply to the brain may resemble somewhat the suction feed of petrol to a modern motor engine, ensuring an adequate supply and safeguarding the brain from the effects of any rapid fall in arterial pressure. He draws attention to the fact that a craniotomy removes this safeguard so that rapid alterations of the position of the body are less easily compensated. The clinical implications of this work have not yet been fully studied, but it obviously has important bearings both on cerebral surgery and on the treatment of traumatic and vascular lesions of the brain.

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[3] Amer. Jour. Med. Sci., April, 1933, p. 509.

[4] Jour. Amer. Med. Assoc., 1930, xcv., 1243.

[1] Bull. Johns Hopkins Hospital, May, 1933, p. 345.

EXPERIMENTAL EMBRYOLOGY AND THE NERVOUS SYSTEM

THE nervous system is early laid down and elaborated in the growing embryo, and early shows a high degree of regulability and dependence upon internal factors. For these reasons the methods of experimental embryology have had peculiar success in the study of the many problems presented by nervous structure and function. Prof. Ross G. Harrison chose this subject for his Croonian lecture before the Royal Society on June 29th and described many interesting observations on the embryo which have enlarged our knowledge of neurology. The old controversy as to whether form determines function or function form has received a striking contribution from the fact that complicated neuromuscular mechanisms are completely laid down in the vertebrate embryo long before they begin to work. In the amphibian, where they work much earlier, their activity can be suppressed by means of chloretone without in any way interfering with their development. Embryological study also played an important part in the establishment of the cell theory, or in more technical words, the neurone concept; in the amphibian embryo it was shown that ganglion cells were essential while sheath cells were not, thus indicating that the nervous units are autonomous. The growth of nerve-fibres from the cell by means of amœboid acitivity has been actually watched in tissue-culture, and this experiment settled the question of whether fibres grew out from the young neuroblast or were the result of differentiation of pre-existing protoplasmic bridges. The outgrowth is more or less haphazard, but can be controlled by altering the structure of the fibrin clot in the culture medium and so producing tension. In this way the outgrowing fibre can be persuaded to form plexuses. Chemical stimuli, however, have not yet been shown to exert any influence on the growing fibre, although theoretically they would seem most likely to play a part. In the living embryo the course and final fate of the outgrowing fibre is determined by the peripheral structures which it meets, as is interestingly shown by limb-grafts. If the limb of a large salamander is grafted on to a small salamander, the nerve-supply of the limb is provided by the host, but its arrangement is that of the animal from which the grafted limb came—i.e., the nerves are correspondingly large, the sensory nerve-fibres and spinal ganglion cells being actually increased in number while the motor nerves are adjusted by more frequent division than usual of the small salamander's axones. There seems to be some kind of attractive influence from the periphery; when a limb is shifted forward or backward on the animal the nerves normally supplying it tend to converge upon it. If a limb is prevented from developing, its spinal ganglia show hypoplasia, but if a limb is grafted out of place the ganglia show hyperplasia. The motor centres are not similarly affected, though the size of their cells may be reduced or increased. Thus hyperplasia and hypoplasia are the result of incoming rather than of outgoing influences, and the developing nervous system responds to a great variety of changed conditions. Further study along these lines will surely yield fruitful results.

ARTHRITIS

So much has been written about rheumatism in the last few years that few would care to say which views have been justified and which discredited. The British Medical Association's committee have done a real service in producing a short report[1]—no more than 19 pages—on the causation and treatment of arthritis and allied conditions, which gives a clear, balanced, and comprehensive survey of our present knowledge of this important group of diseases. In addition they survey the national schemes for treatment already in practice in Holland, Germany, and Sweden, and set out a suggested scheme for Great Britain together with proposals for future research. The persistence of theories which have no valid foundation is an obvious bar to progress, and the committee have done their best to bring the facts into the light of day. They point out, for example, that the idea that arthritis is due to an excessive accumulation of lactic acid in the body is now regarded as incorrect and that the lactic acid in the blood, urine, and sweat of arthritic subjects shows no material variation from that seen in non-arthritics. Further, they say that an acid reaction of the skin is found in non-arthritics as well as in arthritics, and the change in the reaction of the skin during a hot-air or vapour bath is a normal physiological process. Again, the division of rheumatic disease into two groups, according to an acid and an alkaline diathesis, gains no support from well-controlled experiments. Since R. Pemberton, of Philadelphia, and his co-workers showed that a majority of rheumatoid arthritis patients have a definite glucose intolerance, this finding has often been interpreted as due to a defect in the pancreas. This interpretation, however, is incorrect because, as Pemberton emphasises, the defect is in the tissues themselves and in their blood-supply, and owing to vasoconstriction the tissues absorb and store glucose at a reduced rate. The committee draw attention to the very real value of manipulation in cases of arthritis—a form of treatment not nearly as widely used as it should be. They remark that "the reputation enjoyed by certain irregular practitioners might be reserved for the medical profession if a greater interest were taken in this branch of therapeutics and were technical skill in these methods more widely distributed." A section of the report which will be particularly helpful to many is the one dealing with mineral waters and baths. It is customary to recommend one spa more than another, but in the recommender's mind there is not always a clear idea why a certain patient will receive more helpful treatment at A rather than at B for his particular complaint. Here we have a short description of the chemical content of the various waters with an indication as to which form of rheumatism will be likely to benefit from which type of mineral water. It is somewhat depressing to note what a large part orthopædic and surgical measures play in the treatment of arthritis, and it is to be hoped that as time goes on the emphasis will shift further away from them.

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[1] Brit. Med. Jour., June 17th, p. 1033.

THE OLD ASHMOLEAN

A SECOND and greatly enlarged edition of a Guide to the Historic Collections of Scientific Instruments and Kindred Objects, in the Old Ashmolean at Oxford, has been prepared by the curator, Dr. R. T. Gunther, and was issued on the 250th anniversary of the opening of that museum by the Duke of York on May 21st, 1683. The earlier edition, which appeared under the title of "Historic Instruments for the Advancement of Science" and was reviewed in THE LANCET for Jan. 2nd, 1926, dealt principally with the Foundation Collections given to Oxford by Dr. Lewis Evans in 1925, which were principally mathematical and astronomical and did not include many items of medical interest. It served, however, as a nucleus round which has gathered scientific material of all kinds, though principally relating to work done in Oxford. Among these accessions are the Clutton Collection of Materia Medica, comprising 1032 specimens purchased from Joseph Clutton, of Holborn, for £21 6*s.* 8*d.* in 1729, perhaps the oldest intact collection of its kind of ancient date in the world, and the even earlier teaching collection of physical drugs, formed by John Pointer, of Merton College, and used by him for instructional purposes about 1715. The series of microscopes on exhibition includes many of special interest from the facsimile of the original Hooke instrument about 1665, by means of which cellular structure was first recognised and delineated, to more recent types of achromatic instruments, such as the Pillischer stands used by Sir Henry Acland when, with Victor Carus as his demonstrator, he introduced the practical teaching of histology and microscopic anatomy into Christ Church, and so into Oxford. Of special value is the picked series of achromatic object glasses by the best makers, specially chosen by Mr. E. M. Nelson to illustrate the principal stages in the evolution of this essential adjunct to the microscope. A typical collection of instruments drawn from the duplicates in the collections of the Royal College of Surgeons of England is now being extended by more recent acquisitions from the Radcliffe Infirmary and from private sources. So that in time Oxford may also come to possess a select, if not a large, collection of historic surgical instruments. And thus may be materialised for the first time in two and a half centuries the intention of Elias Ashmole, the founder of the museum: "Because the knowledge of Nature is very necessarie to humaine life, health and the conveniences thereof, and because that knowledge cannot be soe well and usefully attain'd, except the history of Nature be knowne and considered; and to this, is requisite the inspection of particulars, especially those as are extraordinary in their Fabrick, or usefull in Medicine. I Elias Ashmole, out of my affection to this sort of Learning, wherein myselfe have taken, and still doe take the greatest delight; for which cause also, I have amass'd together great variety of naturall Concretes and Bodies, and bestowed them on the University of Oxford."

ANIMAL RESEARCH IN TROPICAL MEDICINE

THE necessity of animal research for the progress of medical and veterinary science has been accepted, however unwillingly, by most of those who have to treat sick men and beasts. Nevertheless, so long as there are people who try to stop this important work so long must the annual Stephen Paget memorial lecturer repeat the story of our indebtedness to experimental science. Sir Leonard Rogers, delivering the seventh lecture on June 22nd, declared boldly that more specific curative remedies for serious widespread disease have been discovered by animal experiments in about 30 years than accrued from 3000 years of empiricism, and illustrated his thesis from the field of tropical medicine. As the result of a few almost painless experiments, he said, the success of permanganate of potash in saving the victims of snake-bite was established, but even these experiments were postponed for nearly 30 years by the efforts of anti-vivisectionists, to whose door must be laid the deaths of an uncounted number of victims of snake-bite in the interval. The case-mortality of cholera has been reduced from 59 to 20·8 per cent. by the use of intravenous injections and permanganate pills, the clue to the use of the pills having been furnished by those same experiments which went so far towards solving the terrible problem of snake-bite. Moreover, it is now possible to protect altogether a very large proportion of inoculated subjects. The only specific curative treatment for bacillary dysentery is the antitoxic serum obtained through the horse, while amœbic dysentery, and associated liver abscess, can now be treated scientifically as a result of experimental work. The modern methods of attacking plague are based on experiments with vermin on whose destruction large sums are annually expended, yet the opponents of vivisection would apparently prefer their rats and mice to be exterminated by poison or gas rather than that a few of the doomed should die painlessly in a laboratory for the salvation of thousands of men, women, and children. Sir Leonard showed how during the European war enteric fever was displaying an alarming tendency to spread until the heroic propaganda work of Stephen Paget induced the soldiers to submit voluntarily to the preventive inoculation which would have been made compulsory but for the agitation against it. The modern compounds which are giving us the upper hand in the fight against sleeping sickness, which has for many years been decimating Africa, are largely due to experiments on rats and mice, and similar researches have provided the means of eradicating kala-azar, which carried off one-third of the population of the Brahmaputra valley of Assam in the course of 30 years. And so the story goes on, through bilharziasis, hookworm disease, and malaria, to the many diseases of animals themselves which have been mastered as the direct result of animal experiment. Sir Leonard mentioned rinderpest, hæmorrhagic septicæmia of cattle, blackquarter, anthrax, swine erysipelas, and distemper to show the debt of animals to experimental work. It must certainly be held unreasonable to dispute the fact that beasts as well as man have been saved much suffering by this work.

THE third International Congress for Experimental Cytology will be held at Cambridge from August 21st to 26th. The international president is Dr. Theodor Huzella, professor of anatomy in the University of Debreczen, in Hungary, and the local president Mr. James Gray, F.R.S. The main subjects of discussion will be cell respiration and cell metabolism, cell form and function, the electrophysiology of the cell, Entwicklungsmechanik und Explantation, and the cultivation of animal and plant viruses. The local secretary is Miss Honor Fell, D.Sc., Strangeways Research Laboratory, via Cherryhinton, Cambridge.

POST-GRADUATE LECTURES

A COURSE of lectures was held at St. Bartholomew's Hospital on Friday and Saturday of last week for the benefit of old students of the hospital and other members of the medical profession. The following are summaries of three of those delivered.

TOXIC GOITRE AND ITS TREATMENT

(PROF. F. R. FRASER)

As a result of investigations that are being pursued in many countries it is becoming possible to obtain a clearer picture of the natural history of toxic goitre and of other disturbances of the thyroid gland, and it is becoming possible to correlate the various clinical types of toxic goitre and to view them as examples of one disease process.

Clinical types.—The disease includes such various types as (1) adolescent goitres with slight nervousness and tachycardia; (2) the single attack of typical exophthalmic goitre with recovery, and the return of the thyroid gland apparently to normal; (3) the relapsing or chronic form of exophthalmic goitre; (4) a simple goitre, colloid or nodular, with evidence from time to time of toxicity, tachycardia, loss of weight, and nervousness; and (5) the long-established goitre, nodular and fibrotic, in middle-aged women with auricular fibrillation and congestive heart failure, but without the classical signs of exophthalmic goitre.

The disease process.—Largely through the work of Marine we believe that the thyroid gland responds to a variety of stimuli, which occur in the ordinary life of the individual, by increased activity, and that if the stimulus is great relatively to the capacity of the gland, the gland responds with hypertrophy and hyperplasia, and loss of colloid. When the stimulus ceases the gland involutes and returns to the normal resting state with colloid storage. Chesney and Webster studied this process of involution in rabbits, in which the hyperplasia was the result of a cabbage diet, and in which the involution was brought about by the administration of iodine. The goitre was simple—that is to say, signs of toxicity were absent. Sometimes the process of involution did not result in a return to the normal structure throughout the gland, but areas of hyper-involution were seen in which the gland follicles were distended with colloid as in a colloid goitre, and even colloid cysts were formed. Reinhoff studied the involution that resulted when iodine was administered to patients in a first attack of exophthalmic goitre, and he showed that when the remission occurred as a result of this treatment the involution process was not always homogeneous but that there occurred areas of hyper-involution with colloid distension, and also areas of hyper-involution with the gland substance continuing in a state of hyperplasia. Around these localised areas of hypo-involution or of hyper-involution the gland structure was compressed and the cells of the follicles atrophied, so that fibrous tissue surrounded the area and produced an appearance as of a capsule. These observations and many others with similar results suggest that when the thyroid gland responds to stimuli, as it certainly does repeatedly in the life of an individual so that increased activity results, it usually involutes when the stimulus ceases and returns to the normal resting condition but that in certain individuals the involution is faulty, and that if repeated hyperplasia and faulty involution occur nodules and fibrosis result.

A number of stimuli are known that cause the gland to respond with increase of activity and with hypertrophy and hyperplasia such as infections, faulty diets, activities of the sex organs, and iodine deficiency, but why the increased activity should sometimes be accompanied by evidence of toxicity we do not know. A gland that from its nodular structure shows evidence of repeated stimulation with hyperplasia, followed by involution on many previous occasions but without there being any history of toxic goitre, may at some later time respond to some stimulus and the patient then for the first time show signs and symptoms of toxicity. On the other hand, a gland that shows no evidence of previous trouble may respond to some stimulus with enlargement and hyperplasia, apparently for the first time, and the patient may show all the classical signs of exophthalmic goitre.

Course of the disease.—The course of toxic goitre may be a single flare of toxicity with recovery after a period of weeks or months and a return to health; but more frequently it is a series of flares of varying severity, separated by partial remissions. From the point of view of prognosis and treatment it is clearly important to determine whether the patient at any given time is in the stage of relapsing or in the stage of remitting. The disease may prove fatal in one of two ways. The first attack or any of the repeated relapses may be so severe as to cause death, and if a series of relapses continues over a period of years the organs of the patient, especially if elderly, give way under the strain and death results, most frequently from heart failure.

The symptomatology is notoriously variable but if, as Dunhill has pointed out, the variations in the stimulus, the variations in the capacity of the gland to respond to the stimulus, and the variations in the organs and tissues of the patient to withstand the strain are considered, much of the variety in symptoms can be accounted for. Even when all these variable factors are considered there are still many clinical features of the disease, such as the variability in exophthalmos and other eye signs, that cannot be satisfactorily explained.

Treatment.—Although the cause of toxic goitre is not known the exacerbations and relapses are so commonly associated with certain conditions that these must be regarded as at least subsidiary causes of the disease. Activities of the sex organs, such as occur at puberty and at the menopause, infections, especially tonsillitis and psychic disturbances, such as long-continued family troubles and financial worries, are the most frequently met with. Psychic disturbances associated with marital and sexual difficulties appear to be especially potent. But such apparently causal factors in this disease are events that occur in the lives of numerous individuals who do not develop toxic goitre, and so it seems necessary to postulate a constitutional factor. The presence of toxic goitre in both mother and daughter or in more than one member of the same generation in a family has been noted sufficiently often to support the hypothesis of a constitutional factor that can be inherited.

It may be because of this constitutional factor that a complete cure is so seldom attained, and a patient who has had toxic goitre must be guarded and guided through life and especially when worries, infections, pregnancies, and the menopause occur.

During an attack or a relapse every effort must be directed to bring about a remission, and the most important factor for this purpose is rest. Even if treatment by thyroidectomy is to be employed the operation risks are least during the stage of remission. The rest must be physiological and psychic as well as physical, and much thought and care must be expended on the details if the best results are to be obtained. If any subsidiary cause can be identified it must be removed if possible. Iodine should be given, for although it does not cure the condition or alter the course of the disease, it enables the disease to run its course at a lower level of severity.

If the response to treatment on these lines is not satisfactory after a few months or if the case is of the chronic or relapsing type, some method of treatment to reduce the amount of functioning gland tissue is necessary, unless the toxicity is very slight. The methods available are thyroidectomy or irradiation by X rays or radium. Subtotal thyroidectomy is the most certain and the quickest of these methods, but the mortality of this operation is not negligible even in the hands of experienced surgeons. On the other hand, irradiation is uncertain in the ultimate result and it may take many months to produce the benefit that subtotal thyroidectomy brings about in a few weeks. If a surgeon with continuous experience of operating on the thyroid gland is not available, the slower methods must be considered, especially if the toxicity is not sufficiently severe to interfere with the livelihood of the patient, or the economic circumstances of the patient do not require an early return to efficiency. If the thyroid gland is nodular the methods of irradiation are less likely to succeed and thyroidectomy is more necessary, and if auricular fibrillation occurs thyroidectomy is the only satisfactory method of treatment. In the present state of knowledge if rest, iodine, and the removal of subsidiary factors do not bring about a successful result in six months, surgical treatment is the most satisfactory, but it should only be advised if a surgeon of experience and skill is available. By subtotal thyroidectomy the patient is frequently returned to full efficiency and at the least will not be liable to dangerous relapses in the future, but in most instances something abnormal persists and the physician must continue to guide and to guard through the troubles and accidents of life.

ANÆSTHESIA AND ANALGESIA IN LABOUR

(Mr. John Beattie)

Up to the present no ideal drug or combination of drugs for administration during the whole time or any part of the time during labour has been discovered. The experienced obstetrician will vary his method of producing relief from labour pains according to the temperament of the patient, the number of pregnancies she has had, and the type of pains during the first stage of labour.

Anæsthetics and analgesics in midwifery practice are used (1) for purely medical reasons—i.e., to facilitate delivery under conditions of greater or less abnormality, and (2) for partly medical and partly humanitarian reasons—i.e., to relieve or abolish the pain associated with normal labour.

In view of the present public demand for relief from the pains of childbirth, it must be emphasised that a woman who insists on complete relief is running an increased risk unless gas-and-oxygen is used which is impossible in the average case. On the other hand, when a patient feels the uterine contractions to be intolerable, and becomes excited, the use of anæsthesia is of great value in assisting a normal delivery.

GAS-AND-OXYGEN

If the surroundings are suitable, the obstetrician has time, and the patient can afford to have a midwife in attendance, it is possible to offer substantial relief to the patient. If complete relief is demanded the safest method is to administer gas-and-oxygen over a long period. This method requires a whole-time expert anæsthetist and the total cost is prohibitive for many patients.

But the great advantages of the method are: (1) safe administration for any length of time; (2) complete relief from second stage pains, and if necessary, from most of the first stage pains without any deleterious effect upon uterine contractions; (3) the addition of a little ether when the head is being born will greatly assist the obstetrician in the control of the head and in the preservation of the perineum; (4) the third stage of labour is terminated while the patient is still under the influence of the gas-and-oxygen, and the judicious use of a little carbon dioxide may make the patient cough and deliver the placenta out of the vagina; (5) the anæsthetic never produces any adverse effects on the child; (6) the anæsthetic is not unpleasant to take; (7) its depth can be altered at will, and the addition of ether quickly produces full surgical anæsthesia. The apparatus (Boyle's machine) can be obtained in portable form. In order to cut down the time which the anæsthetist must stay at the bedside, it is possible to administer morphia or other sedative drugs in the first stage, and use gas-and-oxygen in the second stage when the pains become more severe.

CHLOROFORM AND ETHER

Chloroform and ether in various mixtures have the disadvantage that the anæsthetic once started cannot well be discontinued, and therefore considerable skill is required in judging when to start it. If too much chloroform is given pains may cease. The nervous woman who becomes hysterical over first stage labour pains cannot be given chloroform or ether owing to the length of time for which the drug would have to be administered. Too early administration of ether and chloroform in the second stage often results in the unnecessary delivery by forceps. If deep surgical anæsthesia is required it is advisable to change to ether if pure chloroform has been used. In no circumstances should more than 6 drachms of chloroform be used, and as a rule much less. Chloroform or a mixture with ether can be given by an efficient midwife towards the end of the second stage of labour.

Self-administered chloroform in a modern fool-proof Junker's inhaler is a very good method of producing analgesia during uterine contractions, the patient receiving a minimum of anæsthetic.

Chloroform ampoules have recently been suggested as a method of producing partial anæsthesia during the second stage of labour suitable for the use of midwives working without a doctor, but in my view it is very doubtful if they are suitable for this purpose. In the maternity ward of this hospital I have found the method very satisfactory in some cases, but of little use in others. One is supposed to know when to break another capsule by smelling the mask to see if the chloroform has been used up. This technique alone is open to considerable error and one can well imagine a patient obtaining too much chloroform, even though it is laid down that not more than 6 to 10 ampoules are to be used for any one case. In the hands of a qualified man, the capsules have little advantage over the mask or the Junker.

Ether may be used alone upon a mask, but its irritant effect and unpleasant smell make the patient restless, and with the very excitable woman the method is worse than useless.

GWATHMEY'S METHOD

Gwathmey's method, described in 1924, depends upon the induction of hypnosis as soon as the second stage of labour begins followed by amnesia by the use of drugs whose actions are complementary—namely, ether and magnesium sulphate.

The sedative action of morphine sulphate gr. ¼ subcutaneously is prolonged and increased by the injection of magnesium sulphate. When this sedative action wears off an alcoholic and oily solution of ether and quinine is given per rectum, and then a further hypodermic injection of magnesium sulphate is given. The patient is supposed to sleep between pains for two to four hours after which complete consciousness returns.

One or two further quinine enemas may be given, with the object of counteracting the depressant effect produced by the morphia and ether. Gwathmey used this method in about 20,000 cases and claims success in 85 to 97 per cent. of cases without maternal or fœtal danger. The disadvantages of this method are the intricacy of technique, the length of time that must be spent at the bedside, the necessity of isolating the patient, and the possibility that proctitis may follow the introduction of ether into the rectum.

SEDATIVE DRUGS

Sedative drugs used in midwifery are bromides, chloral hydrate, morphia, and hyoscine. These secure diminution of the sensation of pain by acting direct upon the brain and are of very great value in the first stage of labour. The use of bromide, either alone or in conjunction with chloral hydrate or chloralamide, is common. Repeated doses of potassium bromide and chloralamide, of each grs. 20, is indicated in the first stage of labour if this is at all prolonged, and in women who are nervous and highly strung; but if the first stage is excessively long these drugs are seldom effective enough to be given alone.

Morphine may be given alone or in conjunction with hyoscine producing twilight sleep in the first stage of labour. When given alone it is of special use in cases of prolonged labour due to mild disproportion which can be overcome by gradual moulding of the fœtal skull, and in cases of primary uterine inertia which is often associated with occipito-posterior presentations. There is no danger in this method of treatment if the cervix is not fully dilated, but the drug in doses of one-sixth to one-quarter of a grain should be given early before the patient is completely exhausted.

Omnopon is reputed to produce a fair degree of analgesia without reducing the force and frequency of the contractions, 1 c.cm. of the solution being equivalent to one-third of a grain of morphine. Besides having central analgesic action, morphine in labour has also the local beneficial action of lessening the contractions in frequency and increasing their duration.

Twilight sleep, consisting of combined morphine and scopolamine (hyoscine hydrobromide) followed by scopolamine alone, has many disadvantages. If an island of memory occurs owing to delay in giving a dose of scopolamine, the patient may subsequently build up the whole course of the labour upon the memory of one or two pains. The method is dangerous to the child if it is begun when the delivery is expected or occurs within three hours. In such a case the baby is born in deep narcosis and efforts at starting respiration may be of no avail. The combination of drugs affects uterine contractions, causing delay in the first and second stages, with an increased incidence of forceps delivery and danger of post-partum hæmorrhage. Some patients, moreover, have an idiosyncrasy for hyoscine and react to its administration by becoming excited and violent. Twilight sleep is, however, ideal for the very nervous primipara, whose fear produces an inertia and irregularity of uterine contractions which delays the birth of the child. Morphia and scopolamine relieves the patient of her apprehension and hypersensibility and the uterus begins to act more normally.

HYPNOTIC DRUGS

These are derivatives of barbitonum and consist of Avertin, Nembutal, Pernocton, and Sodium Amytal. Sodium Soneryl has recently been tried as a premedication before anæsthesia for operation, but as far as I know no report has been published on its effect when given during labour. All these derivatives of barbitonum have been acclaimed by individual workers as producing a sufficient degree of hypnosis during labour to render the patient forgetful of the pains when she recovers full consciousness.

Avertin.—In a group of cases at this hospital has given very satisfactory results if injected at the right time and stage. We have given doses of 0·08 g. per kilogramme of body-weight less 14 lb. as the estimated weight of fœtus and placenta, but I think it would be safe to give 0·1 g. per kilogramme after allowing for the weight of the child. The avertin is injected when the cervix is two-thirds dilated in primiparæ and half dilated in multiparæ. The great disadvantage in this method of producing hypnosis during labour is that, if the avertin is given rather later than usual, the rectum either will not hold the injection or the avertin will be returned before it is absorbed as the fœtal head is driven down against the rectal wall during a contraction. The method is good in cases admitted to a hospital or nursing-home before they go into labour. In all our cases considerable relief from pain was experienced and many patients could remember nothing of the labour after the injection of avertin. In some cases the labour is prolonged and there is a slightly increased incidence of forceps delivery. In our cases the third stage of labour was normal and there were no instances of post-partum hæmorrhage, and no case in which the injection produced excitement and violent movements; but such a complication is known to have occurred and it is necessary therefore to have a competent nurse always in attendance. The avertin must be freshly prepared.

Nembutal is probably the safest and easiest of the barbitonum derivatives for use in labour. It is given by mouth in gelatin capsules because the drug decomposes in air, each ampoule containing grs. 1½. There are various ways in which this drug may be administered in labour. Probably the best method is that described by O'Sullivan and Craner in which a combination of nembutal and chloral hydrate is given. It is important to administer the drugs at the right time, as, if given too early, the force and frequency of the pains may be diminished and, if given too late, the patient will suffer considerably before the effects of the drug treatment are experienced, and remembering this, will feel that she has had little relief.

In their series of cases O'Sullivan and Craner had complete success in 62 per cent., and failure to produce relief in 7 per cent. In the remaining 31 per cent. of cases varying degrees of hypnosis were produced. I have used nembutal in labour in a good many cases, and, on the whole, the results are quite satisfactory. If nembutal and chloral hydrate are used together a trained nurse must be in constant attendance on the patient. It is quite feasible, however, to use nembutal alone late in the first stage of labour and in smaller doses such as grs. 3 only, when the patient gets considerable relief. The disadvantages of this drug in labour lie chiefly in the fact that it is impossible to judge accurately the right dose for each patient. It is possible in rare instances that grs. 3 of nembutal is too much or that when an additional dose of grs. 3 is given the narcosis may become too deep. As yet no antidote is known for use in cases of nembutal overdose. In our series several patients had more than grs. 7½ of nembutal and one of them received grs. 9 without any ill-effects to either mother or child.

Pernocton is another derivative of barbitonum of complicated formula. It may be given intramuscularly or intravenously, but if given subcutaneously there is great danger of producing a large sloughing area. I have not used this drug personally, but I have seen the results of its use when given by the intravenous route, when it does not appear to delay the progress of labour in normal cases, and if the injection is not given too late, there is no increased incidence of asphyxia and oligopnœa in the baby.

Sodium amytal.—I have had no experience with the use of this drug, which is said to produce efficient narcosis in the average case. It has the great disadvantage that it results in violent excitement in quite a large number of patients; some respond to an average dose much better than others, and there is no means of discovering an idiosyncrasy to the drug before its administration.

As sedatives, when given by mouth in the first stage of labour, the barbitonum derivatives, notably *Veramon* (grs. 9) or *Allonal* (two or three tablets) are of special use, especially in cases of severe primary uterine inertia.

CONCLUSION

To summarise the best methods in individual cases: In normal labour not unnecessarily delayed, chloral hydrate and possibly veramon should be used during the first stage. During the late second stage the patient may use the Junker apparatus herself, unless a midwife is present, who is experienced in giving small amounts of chloroform and ether or chloroform on a mask before and while the head is being born.

For a patient who insists on a large degree of analgesia during the latter half of a labour of normal duration nembutal is probably the best drug to use; but if this drug is used in full doses a midwife must be in attendance the whole time, and the doctor must see the patient frequently. The nearest approach to the ideal method of producing anæsthesia during labour is undoubtedly gas-and-oxygen, and its use by an increasing number of practitioners is likely in the future. After a little practice anyone can give gas-and-oxygen well enough to produce great relief in the second stage of labour.

As the public demands with increasing vigour some safe method, it would be the best policy to try to overcome the disadvantages of the method of administering gas-and-oxygen in order to promote its wider use.

In cases of abnormal labour, such as primary uterine inertia and considerable delay in the first stage, &c., I suggest the exhibition of chloral hydrate followed by veramon or allonal followed by omnopon if necessary. In the second stage of labour in such a case care must be taken to avoid the use of anæsthetics too early, unless gas-and-oxygen are used. If forceps delivery is necessary chloroform or a mixture of chloroform and ether is probably the best.

For the very nervous patient twilight sleep is suitable despite its disadvantages.

COMMON FRACTURES OF THE LOWER LIMB

(MR. JOHN P. HOSFORD)

I PROPOSE to discuss the treatment of only three or four of the commoner fractures in the lower limb. First amongst these is

FRACTURE OF THE NECK OF THE FEMUR

This may be either extracapsular or intracapsular (according to the old and best known nomenclature). It is to the treatment of the fracture in old people that I propose mainly to refer, and in them the intracapsular is the commoner.

The diagnosis, with the slight shortening, external rotation, pain, and disability is not usually difficult. The old practice of allowing patients to remain propped up in bed with their leg supported by sandbags under the belief that non-union was almost inevitable cannot be too strongly deprecated. Only in very old persons with weak hearts or other severe infirmity is this advisable. No age-limit can be given, but certainly in patients under 75 it is usually worth while to attempt to correct the displacement and splint the limb until union has occurred. Numerous methods of internal and external fixation have been and are advised, but fixation in abduction (Roy Whitman) in plaster is probably the simplest of the recognised methods. Unless there is some strong contra-indication I always employ this method. The patient, under general anæsthesia (preferably gas-and-oxygen with a very little ether, after a preliminary dose of morphine and hyoscine), is placed on some form of orthopædic table or traction apparatus, and if the characteristic deformity is present strong manual traction is applied to the leg which is then internally rotated and finally fully abducted at the hip. In this position a plaster hip spica which extends to the toes is put on. It is not necessary to include the sound leg provided the plaster is continued high up on the sound side, since by bringing it well up over the lower part of the bony thorax on this side, attempts to adduct the fractured leg are prevented. With the aid of the free sound leg, and a rope and handle over the bed for a hand-grip, patients are not very helpless. I am often surprised how well frail patients tolerate the anæsthetic and the manipulation. A skiagram to check the position of the fragments after the application of the plaster should be taken. The plaster is kept on for three months. The patient then wears a weight-bearing Thomas's calliper splint for a period of some months, the time varying according to the age and weight of the patient and to the position and amount of union of fragments. During this period the patient may be lifted on to a couch or sit in a large armchair.

FRACTURES OF SHAFT OF TIBIA AND FIBULA

These are common at all ages. In those oblique ones (usually due to indirect violence) in which there is a sharp-pointed end to the proximal fragment, great care has to be taken to prevent its penetrating the skin, if this has not already happened. The treatment of open fractures is so important that I will emphasise the main points. An open fracture is a real emergency; every hour makes a difference. After cleaning and sterilising the surrounding skin (rubbing should not be too vigorous) the wound is excised by cutting through healthy skin immediately around it; any dirt is removed, and lacerated or contaminated tissues beneath the skin are cut out. If this is done within six hours of the accident the skin should be sutured to obtain primary union; if later than this a delayed primary suture should be carried out. For purposes of treatment these fractures may be divided according to whether or not shortening is liable to occur. If no shortening need be feared and the bone ends are well together, the limb should be immobilised in a plaster cast which should extend from the toes to above the knee; if there is any angular deformity it should be corrected by a simple straightening manipulation before the plaster is applied. In those cases in which there is shortening with overlapping or comminution of fragments I use continuous traction. Skeletal traction is preferable, a Kirschner wire or a pin being put through the os calcis under local anæsthesia; it is far better to put the pin or wire through than just above the os calcis. The limb should be somewhat elevated with the knee a little flexed. After a trial of many splints I have come to like Böhler's leg splint more than any other. With a suitable weight applied to the os calcis and the leg comfortably adjusted on this splint a satisfactory position is usually obtained. A comfortable position usually means a satisfactory one. The limb need not and should not be encumbered with numerous bandages. When early callus is forming and the bones have become sticky—in about three weeks—the leg is removed from this splint and put in plaster from the toes to above the knee. The patient should not be allowed to remain in bed for a long time; it is extremely important for him to be up and about as early as possible either on crutches or better still on some form of ambulatory splint. A long period in bed causes rarefaction of bone, wasting of muscles, a disorganisation of the vasomotor tone of the limb, and mental depression. Delayed union is common in fractures in the lower half of the tibia, but this should not tempt the surgeon to do an open operation and insert any form of hardware.

FRACTURES AT THE ANKLE-JOINT

The commonest of these is an isolated oblique fracture of the lower end of the fibula without displacement and without injury to ligaments. Liability to displacement is slight, and after treatment with a firm bandage applied over wool for a few days to reduce swelling the ankle should be strapped very securely and the patient encouraged to walk naturally but moderately. A Pott's fracture, a name which should only be used for a fracture-dislocation of the ankle-joint in which the foot is everted and displaced outwards and perhaps backwards, is also unfortunately common. In those cases where there is backward displacement the posterior margin of the articular surface of the tibia is also broken off in addition to the fracture of the lower end of the fibula and the internal malleolus. Malunion of a Pott's fracture is not infrequently seen; to obtain a good result is not difficult, but the greatest care and attention to detail in the splinting of the fracture is necessary. Undoubtedly the best time for reduction of the fracture is as soon after it has occurred as possible. The knee must be flexed, and while steadying the lower end of the calf with one hand, the foot is drawn forwards and inwards with the other; this must be done firmly to ensure full reduction; over-reduction is extremely unlikely to occur. The limb is now encased in a close-fitting, evenly moulded, unpadded plaster-of-Paris cast, which is put on rapidly, and before it has begun to set the same grip is assumed as when reducing the fracture, and is maintained, being sure that the reduction is complete, until the plaster has set. The foot should not be strongly inverted, but the plaster should be well moulded to support the arches of the foot. It is my practice to split the plaster anteriorly in its whole length but not to remove it, and to elevate the limb to about 45°. If this is done there is little fear of serious pressure from the plaster. In a week to ten days, when the swelling has subsided, this plaster is replaced by a similar one which is not cut down anteriorly; an iron walking heel is then fixed to the plaster cast and the patient encouraged to walk about. After about six to eight weeks the plaster is removed, and an Elastoplast bandage is applied to well above the ankle to prevent swelling. The patient is then encouraged to walk normally, in a boot which has the inner border of the sole and heel wedged.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 17TH, 1933

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 18 (last week 18); scarlet fever, 1771; diphtheria, 686; enteric fever, 29; acute pneumonia (primary or influenzal), 840; puerperal fever, 33; puerperal pyrexia, 92; cerebro-spinal fever, 23; acute poliomyelitis, 11; acute polio-encephalitis, 3; encephalitis lethargica, 10; dysentery, 7; ophthalmia neonatorum, 77. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on June 20th–21st was as follows: Small-pox, 49 under treatment, 1 under observation (last week 54 and 0 respectively); scarlet fever, 1656; diphtheria, 1620; enteric fever, 11; measles, 472; whooping-cough, 356; puerperal fever, 21 (plus 4 babies); encephalitis lethargica, 233; poliomyelitis, 0; "other diseases," 220. At St. Margaret's Hospital there were 19 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox or enteric fever, 26 (1) from measles, 6 (1) from scarlet fever, 11 (2) from whooping-cough, 29 (3) from diphtheria, 41 (9) from diarrhœa and enteritis under two years, and 15 (1) from influenza. The figures in parentheses are those for London itself.

Liverpool reported 11 fatal cases of measles and Rhondda 3. Four of the deaths from diphtheria were also in Liverpool. Diarrhœa and enteritis caused 4 deaths in Manchester and 3 each in Liverpool, Birmingham, and Stoke-on-Trent.

The number of stillbirths notified during the week was 292 (corresponding to a rate of 40 per 1000 total births), including 41 in London.

SPECIAL ARTICLES

THE CONGRESS OF MILITARY MEDICINE

MADRID, MAY 29th–JUNE 4th

(FROM A CORRESPONDENT)

ONE of the principal subjects discussed at the seventh International Congress of Military Medicine and Pharmacy at Madrid was *Preventive Inoculation* on which papers were read by Colonel W. P. MacArthur (Great Britain) and Major Masaji Kitano (Japan).

INOCULATION AGAINST DISEASE

Major KITANO said that almost every soldier in the Japanese Army now receives antityphoid inoculation. He demonstrated the accompanying Chart showing the incidence and mortality from 1887 to 1931 in the Japanese army and amongst the civil population in Japan proper during the same period. Inoculation was begun in the autumn of 1908 and was gradually made compulsory, being carried out generally once a year. In 1910 barely half the total strength were protected, but in 1911 nearly 100 per cent. The decrease in the number of cases of typhoid fever corresponded with the extension of preventive inoculation, and this fact could not be explained by a natural decrease of infection or by general hygienic and prophylactic measures. In the civil population at this time there appeared to be a slight increase both in incidence and mortality. Although general prophylactic measures were being gradually improved about 1910, no single measure to cause such a rapid decrease in the number of cases of typhoid fever was introduced into the army at that time. The decrease could therefore, in Major Kitano's opinion, be explained only by the effects of preventive inoculation. For protection against bacillary dysentery, he said, extensive use has been made in Japan of a solid vaccine in the form of tablets, with successful results. The largest number of cases of dysentery ever recorded in the Japanese army was in 1899 when there were 7·7 cases and 1·24 deaths per 1000 of strength. There was a gradual decrease until 1910 when the figures were 0·4 cases and 0·07 deaths per 1000. In 1917 a marked tendency to increase was noted and in 1929 there were 6·1 cases and 0·6 deaths per 1000. At that time there were four times as many cases of dysentery as of typhoid fever and in 1931 sixteen times as many, although there were no deaths therefrom. At first a liquid vaccine was used, but latterly the solid vaccine had been used with very satisfactory results. Two kinds of tablets were used: Tablet A against the Shiga type of bacillus (each tablet contains 6 mg. of dried Shiga type of bacilli); Tablet B against Y and F types of bacilli. In preparation of the tablets, sterilisation by formalin was used for the Shiga bacilli so as to prevent detoxication and decomposition prior to drying. For Y and F type bacilli heat sterilisation at a temperature of 56° C. was employed. The tablets were coated with salol to prevent digestion in the stomach. The following was the composition of the tablet: dried bacteria, 0·017; powdered sugar, 0·12; milk sugar, 0·12; starch, 0·037; talc, 0·006. Tablet A was administered with a glass of warm water in the early morning on an empty stomach on five successive days. Tablet B was given in the same way on the succeeding five days. When the type of dysentery was definitely known only the appropriate tablet was given.

In the years 1930 and 1931, among 14,184 men who had partaken of the tablets there were 88 cases of dysentery, or 6·2 per 1000; of 14,327 men not so protected there were 137 cases, or 9·51 per 1000. Monthly comparisons showed that except during the month in which administration of the tablets was begun fewer cases occurred amongst those protected. It had been shown that the degree of protection was about equal with the liquid vaccine and with the tablet form. With the liquid vaccine the general reaction was less, and the local reaction greater than with T.A.B. inoculation. With tablet vaccine the reaction after oral administration was very slight and

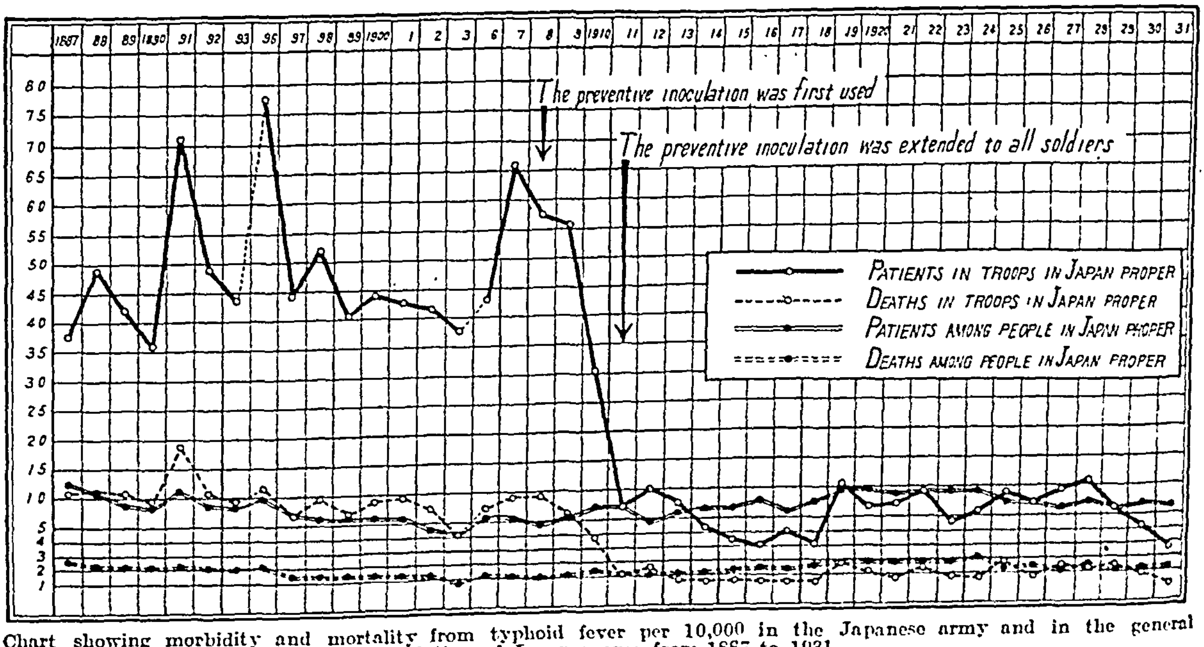


Chart showing morbidity and mortality from typhoid fever per 10,000 in the Japanese army and in the general population of Japan proper from 1887 to 1931.

it was seldom necessary for the soldier concerned to be struck off duty. After oral administration headache was the chief complaint in the case of tablet B and next in order of frequency came gastric disturbance, diarrhœa, anorexia; with tablet A, diarrhœa was most frequent and next in order came gastric disturbance, feeling of tiredness, abdominal discomfort, headache.

General DOPTER (France) said that a law had been passed in France making immunisation against diphtheria compulsory in the French army when the competent local authority considered such action necessary. He also said that diphtheria immunisation was now carried out simultaneously with T.A.B. inoculation when possible. This reduced the number of inoculations and the period of inefficiency.

OTHER SUBJECTS DISCUSSED

A resolution was passed stating that the congress "having considered the constantly increasing dangers of bombardment to which medical units and fixed hospital establishments are likely to be exposed" makes the following recommendations :—

(1) That hospital areas be reserved for the exclusive requirements of the medical service and placed under the sign of the Red Cross.

(2) That regulations be introduced as early as possible to determine the conditions of application of this recommendation in the Geneva Convention for the amelioration of the lot of the sick and wounded in the armies in the field.

Meetings were also devoted to the treatment of the more urgent surgical cases in the front area during war of movement; consideration of a specialised unit, its organisation and tactical employment; the preserved foods forming part of the rations issued in the Services in peace and war; and a comparative study of the organisation of the different military services as regards dental and administrative services.

DEMONSTRATIONS

During the course of the Congress surgical operations were carried out by several visiting foreign surgeons at the large Military Hospital of Carabanchel (3000 beds). This hospital was recently completed and is a fine modern institution. One special feature is the provision of accommodation for the members of the families of officers who are under treatment in the hospital.

An exhibition of medical and surgical equipment was held in the grounds of the Retiro Park. This included a demonstration of a fully equipped army hospital with operating theatres, X ray equipment, and other special services. In addition a field hospital organised by the Spanish Red Cross Society was on view. This was fully equipped and staffed and gave the impression of being a thoroughly serviceable unit. In the exhibition proper there was a display of the first field dressings of various countries and of the field operating equipment used in the Spanish Army. This was contained in stainless steel cases, the instruments being arranged in trays superimposed one on another. In a display of radiological equipment, a full size X ray photograph of the human skeleton was shown.

The opening meeting was presided over by the President of the Republic, who later held a reception at the National Palace. The next congress will be held in Bucharest in 1935.

CORNELIA AND EAST DORSET HOSPITAL.—This hospital at Poole, which has been rebuilt and extended three times in the present century, has now been further enlarged. The additions, which include a theatre on the most modern lines and cost £7000, were opened last week by Lord Dawson.

MEDICINE AND THE LAW

Doctors in Slander Action

AT the Chester assizes last week the plaintiff and defendant were medical practitioners living in the same town in North Wales, the defendant being the medical officer of health. The plaintiff claimed damages for slander on the following grounds. A woman who was his panel patient had, it was said, applied to the local authority for more suitable accommodation. She was referred to the defendant as medical officer who asked, "who is your doctor?" When she named the plaintiff the defendant was said to have said, "You know I take panel patients as well." On another occasion the defendant was said to have remarked to her of the plaintiff, "Oh! he is no good; why don't you change for me?" Defendant, it was alleged, had also shown her a number of envelopes containing panel patients' cards and had added, "They are all changing from him to me; why don't you do so?" The defendant doctor denied the allegations and said he had always been on friendly terms with the plaintiff. The jury evidently disbelieved the denial. They found a verdict for £50 damages for the plaintiff, for whom judgment was given with costs.

There are few graver breaches of professional propriety than the disparagement of a brother practitioner and the poaching of his patients. While the medical profession invariably suffers when one member of it sues another, it is hard to see what other course the plaintiff could have taken in the face of the facts which the case must be taken to have established.

Ambulances and Red Tape

In view of the evidence at a recent inquest, some coördination of the ambulance services of adjoining local authorities seems called for. A car was overturned on the Kingston by-pass road and the driver was fatally injured. The scene was 70 yards from the stream which forms the boundary between the urban district of Surbiton and that of Malden and Coombe. Four minutes after the accident the Surbiton council's ambulance appeared. Its driver, observing that the injured man lay on the wrong side of the boundary, halted at the stream, reversed his vehicle and drove away. Apparently he had strict orders, very definitely framed a few years ago, not to cross the boundary into an adjoining district. Some 20 minutes later the Malden and Coombe ambulance arrived and thus, after a delay which would often have serious results, the patient was removed to hospital. At the inquest an official of the Malden and Coombe council said that coöperation with Surbiton in this matter had been attempted some years ago but had broken down for want of agreement as to the payment of charges. Malden ambulances, he said, had gone into the Surbiton area at least six times in the past 12 months. The clerk to the Surbiton council said there were two sides to the question; on one occasion a Surbiton ambulance had gone into another district and had afterwards been asked by the local authority concerned (not Malden and Coombe) to keep away in future. The coroner rightly observed that human life was the first consideration.

Doubtless the authorities concerned will make joint arrangements to prevent the repetition of such incidents without further delay. It is no time to stand upon geographical dignity when a man lies dying. If adjoining councils cannot agree, there will be a strong case for organising ambulance services by larger units. The present system of summoning help on the fringe of the metropolis seems to demand more knowledge than many people possess. The London Telephone Directory, instructing us how to contend with emergencies of fire, crime, or accident, bids us ask the Exchange for "Fire Brigade," "Police," or "Ambulance" as the case may be, "specifying, if known, the appropriate fire brigade or police station or ambulance authority." How many travellers on the Kingston by-pass could specify the correct ambulance authority with confidence? Few of us, at any rate, would be other than dissatisfied if the fire-engine or the policeman, summoned in emergency, passed by on the other side out of excessive respect for boundaries and jurisdictions. The good Samaritans of the ambulance service must not be Pharisees.

A Technically Pauper Patient

The Bow county court judge gave judgment last week in a curious case where the Essex County Council was suing a former patient of the Whipps Cross Hospital. To his surprise the patient found himself classed as a pauper (or, as we must nowadays say, a rate-aided person) *malgré lui.* He had been knocked down in a London street by a tram last year and had been taken to the Whipps Cross Hospital with a broken leg and detained for eight weeks. At his admission the hospital authorities went through his pockets and found £7 in notes and 8*s.* in silver which they retained. When he was discharged he asked for his money but was told that it had been applied towards his maintenance. A fortnight later he received a bill for £25 4*s.* 8*d.* for the balance of the cost of his maintenance in the hospital. This he refused to pay. He sued the Essex County Council for the money which had been taken from his pockets. The defendant council told him that having been treated in a poor-law hospital he was technically a pauper and must hand over the property found upon him. He answered that he was not an able-bodied pauper but a certificated public accountant with a broken leg, who had never applied for relief by way of public assistance. The solicitor to the West Ham Corporation explained to the court that the Local Government Act of 1929 had abolished boards of guardians and that the Whipps Cross Hospital had been transferred to West Ham. It was intended to appropriate the hospital as a Public Health Act institution, but the building had not been so appropriated. It therefore remained a workhouse infirmary, and anybody who crossed its threshold automatically became a pauper by virtue of his admission as a patient. Consequently the authorities were right to take away his money. This argument the judge found himself obliged to uphold. It was, he said, unfortunate for the plaintiff that the place to which he was taken in emergency for treatment was a poor-law institution and not a general hospital.

The Local Government Act has created an impression that all pauperdom has been removed and that all public hospitals have now pooled their resources. The case may help to stir the public conscience in the matter of the liability to pay for hospital treatment for traffic casualties. There is an idea that the services of hospitals (and of the doctors and surgeons who administer treatment in this connexion) are a fairy gift miraculously available at no cost to the patient. This obscures the sense of obligation to pay on the part of those patients who can afford to do so.

IRELAND

(FROM OUR OWN CORRESPONDENT)

NATIONAL HEALTH INSURANCE

INTERESTING evidence was given recently before a Select Committee of the Senate in reference to the National Health Insurance Bill now before that body. Sir Joseph Glynn, for many years chairman of the National Health Insurance Commission, pointed out that there was no medical benefit in the Irish Free State, and said that the absence of medical benefit tended to vitiate the system of certification of incapacity. He said also that the whole question of unemployment went with sickness. As unemployment increased, sickness increased. It was the same in all countries. Mr. L. J. Duffy, chairman of the Association of Trade Union Approved Societies, welcomed the abolition of the voluntary societies. He believed that the increase in sickness benefits was in part due to irresponsible certification. Mr. M. P. O'Donnell and Mr. T. Hutchinson, on behalf of the Approved Societies' Association of Ireland, also criticised the system of medical certification. Dr. R. J. Rowlette, President of the Irish Medical Association, said that national health insurance should be something more than mere payment when a person was sick. It should attempt to improve the health of the country as a whole, and particularly of a class which came under the insurance. It should be coördinated with the public health system of the country. The present Bill would create an extremely powerful body whose duty would be only to carry out one part of the health work of the country without being in contact at all with the other health activities. The societies had never concerned themselves very much with the health of their members, and contented themselves with the provisions of benefit. In answer to questions he said that if there was going to be unification there should be a nationalised State system of insurance. The provision of medical benefit was an essential part of any scheme of national health insurance. As regards certification, he did not question that evidence of laxity and remissness in their issue could be got. It was not, however, representative of the present system as a whole. Mr. S. T. O'Kelly, Minister for Local Government and Public Health, said that they were attempting to deal with a crisis that was threatening in national health insurance. When he came into office as Minister he was advised by the officials of his Department that a Bill of this sort was urgent. The danger was that if they did not tackle the problem in this way there might be reduced benefits. They thought it would be more equitable to bring all the insured persons into one society, sharing credits and losses all over. Senator Dowdall said there was a consensus of opinion that unemployment caused the greater drain on benefits. It had been suggested that this was due to lax certification. He himself thought that a medical officer was entitled to give a certificate on borderline cases. The Minister said that was a matter that rested with the conscience of the doctor, and he believed that the mass of medical men were humanitarian. Personally, his inclination would be to act generously, but as Minister he would be bound by the law. He mentioned a case where he had heard that a doctor had signed a book of certificates and left it on his hall table, so that certificates could be given to people calling.

HONORARY DEGREES AT THE NATIONAL UNIVERSITY

The Senate of the National University of Ireland has decided to confer honorary degrees on the following on the occasion of the visit of the British Medical Association to Dublin :—*D.Sc.* : Prof. Joseph Barcroft, Dr. Rufus Cole, Prof. Dean Lewis, Prof. T. H. Milroy, and Sir Edward Sharpey-Schafer. *D.Sc.* (Public Health) : Prof. J. M. Beattie, Sir Leslie Mackenzie, and Sir John Moore; *M.D.* : Sir Robert Bolam and Sir Henry Brackenbury. *M.Ch.* : Mr. J. F. O'Malley and Sir Hugh Rigby. *LL.D.* : Prof. T. G. Moorhead and Sir Humphry Rolleston. *D.Litt.* : Dr. T. P. C. Kirkpatrick.

A REPORT ON THE CLINICAL VALUE OF "EVIPAN"

(FROM THE ANÆSTHETICS COMMITTEE, MEDICAL RESEARCH COUNCIL)

ENCOURAGING accounts of the action of a barbiturate anæsthetic, "evipan," which came from German surgeons and anæsthetists seemed to the Anæsthetics Committee to warrant a thorough clinical trial. Twenty-five thousand cases are reported from that country, with one death attributed to "evipan." Accordingly, the offer of Bayer Products, Ltd., was accepted and supplies of the new drug were put at the disposal of the Committee. In making use of these the Committee had the coöperation of a number of anæsthetists and others who have sent details of their cases. At St. Bartholomew's, Messrs. F. T. Evans and Rait-Smith ; at Guy's, Mr. R. C. Brock ; and at St. George's, Messrs. Douglas Belfrage and E. Landauhave assisted in this way ; and Dr. J. M. Barlet, Mr. C. Borland, and Dr. R. Jarman are others who, with Mr. C. Pannett and Sir Francis Shipway, Dr. C. F. Hadfield and Dr. J. Blomfield, members of the Committee, have furnished the material for this report.

Evipan sodium is the sodium salt of N-methyl-C-C-cyclo-hexenyl-methyl barbituric acid, and dissolves freely in water, but the solution is stable only for an hour or two. Thorough pharmacological work carried out in Germany showed the drug to have a high therapeutic quotient in cats and dogs. In the former 25 mg. gave full anæsthesia, while the lethal dose was from 100 to 110 mg., a quotient of 4, and in dogs the quotient was 3·3. Parsons found that in the cat 0·1 c.cm. of a 10 per cent. solution caused a fall in B.P. of 25 mm. Hg, with slow recovery and apnœa for 20 seconds. After a total of 0·6 c.cm. of 10 per cent. solution artificial respiration was needed and the B.P. fell until death. The anæsthetic action of the drug was rapid in onset and short in duration. It is not a volatile anæsthetic but it is very rapidly detoxicated by the liver. Rabbits decompose half the narcotic dose within 13 minutes. Traces of the unchanged substance are excreted in the urine. By-effects in animals were found to be slight. The blood pressure fell 15 to 20 mm. Hg. The pulse remained regular and full. Overdose caused cessation of the breathing, the heart continuing its beat for a considerable time after. Blood-sugar was unaltered and other evidence of effect on body metabolism was of the slightest.

TECHNIQUE AND DOSAGE

When used for anæsthesia evipan is given intravenously. At first the drug was issued in ampoules, each of which contained 3·5 c.cm. of 33⅓ per cent. stable solution in methyl-di-glycol; 3 c.cm. of this contained 1 g. of evipan sodium. Ampoules containing 7·5 c.cm. of distilled water, but capable of holding 10 c.cm., were also issued, and before use 3 c.cm. of the concentrated solution were drawn into the syringe and expelled into the ampoule containing the distilled water. The evipan solution was sticky and required therefore a larger needle than the ordinary hypodermic size. Now, however, the evipan is supplied in powder form in ampoules to which the distilled water supplied in another ampoule is added. By aspirating and reinjecting once or twice, a solution is obtained which passes easily through the ordinary hypodermic needle. This is inserted into a suitable vein of the arm with due antiseptic precautions. It is advisable to have the arm held steadily by a second person because of the twitching of muscle, which often comes on early after injection has begun. The solution is run in at the rate of 1 c.cm. in 15 seconds. Dosage is determined by the characteristics of the patient and the results noticed. Acting on a definite scale arranged according to body-weight does not give satisfactory results. An average amount to produce unconsciousness is about 3 c.cm. A good plan, recommended by Lauber of Könisberg who has had a big experience, is to make the patient count. When the counting ceases through sleep the amount that has been injected is noted, and the same amount is further added for a short operation and twice as much for a long one. In elderly and feeble people and those who have gone to sleep exceptionally quickly, only half the amount which produced sleep is added. Most patients are asleep in about one minute. There is often some twitching or jactitation, but often complete relaxation of the muscles of tongue and jaw occurs early and care is needed to preserve a patent airway. Generally speaking 10 c.cm. are regarded as the maximum dose. When it is desired to complete a longish operation under evipan only, the needle must be left in situ and a further injection made when the anæsthetic effect of the first is obviously wearing off. Used in this way, as much as 20 c.cm. have been injected. There is, however, a fluctuation in the anæsthesia, and we do not see evidence of any advantage in the use of evipan for other than short operations—i.e., of 20 minutes or so at the outside.

SYMPTOMS PRODUCED

A deep yawn just before the disappearance of consciousness is a common symptom. The great majority of patients fall asleep perfectly quietly. Twitching of face muscles is common and there is sometimes jactitation of limbs. In one instance tonic contraction of many muscles and brief stoppage of respiratory movements were observed. The degree of muscular relaxation varies but is rarely extreme or sufficient for an abdominal operation. The pupil is usually moderately dilated but active to light. In the early stages it is sometimes widely dilated. The conjunctival and generally the corneal reflexes have disappeared at the moment of fullest effect. Even then reflex movement at the start of operation has been seen many times. The eyelids are sometimes widely separated.

The effects on blood pressure are slight. There is commonly a fall of about 20 to 30 mm. Hg which is quickly recovered from. Respiration is often somewhat slowed, but there has been seen no serious depression except in one instance when unknown to the anæsthetist the patient, an elderly woman, had received a full dose of morphia and hyoscine before the evipan. The combined result was respiratory stoppage requiring, and removed by, artificial respiration and CO_2 with oxygen. It is inadvisable to give any sedative before evipan. No special preparation is needed, but it is of course desirable to have the stomach empty. Subjective symptoms as described by reliable patients are a feeling of quickly increasing lassitude which cannot be overcome, and loss of consciousness in a few seconds. Experience shows nevertheless that it is as a rule best to wait two minutes after completing the injection before beginning to operate. The length of time of unconsciousness is usually about 10 to 20 minutes after an average dose. After this time the patient can talk, but is sleepy and will drop off again if left quiet. When he finally wakes he remembers nothing after the first prick of the needle.

As in the case of other anæsthetics there is considerable difference in the reaction of different persons to evipan, and the exact behaviour cannot be foretold. The patient may go to sleep with no apparent difficulty and the usual signs of anæsthesia be present, and yet there may be movement on incision to an extent demanding a supplementary anæsthetic. On the other hand, it often happens that merely 3 c.cm. give a perfectly satisfactory, though of course only a short, anæsthesia.

Our experience does not corroborate the statement of Ernst that one can reckon almost always on half an hour's good anæsthesia. We are led to believe that in Germany the surgeon is satisfied with a narcosis which is not regarded as enough by most operators in this country. Certainly the German reports describe a more constant and sufficient anæsthesia than has been obtained here by the same dosage and technique.

CONCLUSIONS

It is obvious from what has been stated that evipan is not to be regarded as a basal narcotic in the sense that, for example, nembutal and avertin are. Its action is so evanescent that it cannot be employed as are these drugs for procuring a longish period of quiet or of unconsciousness before the administration of the anæsthetic proper, nor can it be used, as are these basal narcotics, to put the patient to sleep in his bed in order to avoid all knowledge of transference to the operating theatre. If it is used before another anæsthetic this must follow closely on the administration of the evipan, and as a preliminary therefore it is to be classed with nitrous oxide and ethyl chloride rather than with the basal narcotics. For those who like intravenous methods it is certainly an admirable means of inducing anæsthesia, all opinion agreeing as to the rapidity and pleasantness with which the patient becomes unconscious. Excitement or restlessness during induction have been seen only in unusually emotional subjects. After-effects also are of rare occurrence. It can be relied on for an excellent anæsthesia in minor surgery, that is, for short operations when the possibility of slight reflex movement is not a matter of great concern. It is true that often the anæsthesia is profound and that by repeating the injection it can be prolonged, but it is not obvious that this is a better procedure than usual methods, such as gas-and-oxygen for example. The recovery free from after-effects and the quiet induction make evipan a valuable agent in the case of persons gravely ill, for whom a short anæsthesia is desired for any reason. There are many such instances when it would probably be preferable even to nitrous oxide.

Two examples of this kind may be quoted from our series. A man, aged 62, suffering from aortic regurgitation and arterio-sclerosis had amputation of the great toe for gangrene. He received 6 c.cm. evipan. Sleep was induced in half a minute. The operation took 10 minutes, during which time the anæsthesia was all that could be required. After 20 minutes he woke up yawning and was talking a minute later. Half an hour later he fell asleep and slept for six hours. The other example was a man of 36 years, extremely ill with empyema after pneumonia. He was regarded as unfit for a general anæsthetic. Nevertheless, it was decided to use evipan, of which 10 c.cm. were injected. Anæsthesia was good and the operation, rib-resection, was completed without anxiety. The patient was fully awake after three-quarters of an hour and suffered no after-effects. A few trials have been made of the efficacy of evipan by the mouth. It is described as proving less efficient, thus given, than nembutal in the same circumstances. Nevertheless, two or three of the tablets in which it is provided for oral administration are a useful hypnotic, generally causing sleep in a short space of time. It is a useful agent with which to break a habit of sleeplessness.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

THE following appointments have been notified: Surg. Comdrs. C. G. Sprague to *President* for R.N. Recruiting Headquarters; and J. Wylie to *Norfolk*, and as Fleet Medical Officer.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Comdrs. A. G. L. Reade to *Renown*; and T. W. Drummond to *Effingham*.

Surg. Lt.-Comdr. D. A. Imrie to *Valiant*.

Surg. Lts. D. R. Goodfellow to *Rodney*; and W. T. R. Chapman to *Malaya*.

ARMY RESERVE OF OFFICERS

Maj.-Gen. C. W. Mainprise, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY

Lt.-Col. C. H. Budd, from Cambridge Univ. Contgt. (Med. Unit), Sen. Div., O.T.C., to be Lt.-Col.

Lt.-Col. H. Forrest resigns his commn. and retains his rank, with permission to wear the prescribed uniform.

Capt. R. J. Bruce to be Maj.

Lts. G. McLoughlin and H. W. Davies to be Capts.

J. G. Lawson, late Cadet C.S.M., Durham Univ. Contgt. (Med. Unit), Sen. Div., O.T.C., to be Lt.

Lt. J. E. Foran resigns his commn.

R. Evans to be Lt.

Supernumerary for service with O.T.C.: 2nd Lt. R. H. Foster, from Gen. List, to be Lt. supern. for serv. with Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C. G. A. Kane (late Lt., R.A.M.C.) to be Lt. supern., for service with Queen's Univ. Belfast Contgt., Sen. Div., O.T.C.

INDIAN MEDICAL SERVICE

Lt. D. McCarthy to be Capt. (prov.).

ROYAL AIR FORCE

The undermentioned are granted short service commissions as Flying Officers for three years on the active list: J. S. Carslaw and T. C. Macdonald.

ENLARGEMENT OF CROYDON MENTAL HOSPITAL.—The mayor of Croydon, Alderman W. Peet, recently opened four new villa blocks at the Croydon Mental Hospital at Chelsham. The new buildings, which have cost £51,000, comprise four detached buildings, two for each sex, holding 50 patients each. Apart from cooking, which is done at a central kitchen, each villa is a self-contained unit. The total present number of patients is 822. Land has been secured for further additions in the shape of admission units and a convalescent villa.

OBITUARY

FRANK A. G. JEANS, F.R.C.S.

SURGEON, THE ROYAL INFIRMARY, LIVERPOOL

THE news of the sudden death of Mr. Frank Jeans, at the early age of 55, came as a severe blow to his numerous friends. It was known that he had gone to Harrogate for a holiday to recuperate, but none suspected that this journey was to be his last.. "It is impossible to realise that his rare spirit has gone, and that a personality so rich is already only a memory," writes the colleague and friend to whom we are indebted for much of the following short memoir.

Frank Alexander Gallon Jeans received his early education at Birkenhead School, and later proceeded to Cambridge, where he took his B.A. degree in 1899, and obtained the diploma of the Conjoint Board in 1904. Later he took the M.B., B.Chir. at Cambridge, and in 1907 the F.R.C.S. of England. After some years of study in London, at King's College and St. Bartholomew's, he returned to Liverpool, where he became house surgeon at the Royal Infirmary. In 1909 he was elected assistant surgeon to the infirmary, and in 1924 he succeeded the late Mr. Thelwall Thomas on the senior staff.

During the war Jeans saw service as surgeon to the Liverpool Merchants' Mobile Hospital, holding the temporary rank of major. On his return from active service he threw himself with enthusiasm into the practice and teaching of surgery, and he rapidly became an outstanding figure in the professional life of Liverpool and the outlying districts in North Wales and South-West Lancashire. His early successes were associated with abdominal surgery, but later the study and practice of urology claimed him, and his election a few years ago as president of the urological section of the Royal Society of Medicine gave him particular pleasure. Among other positions he held that of lecturer in clinical surgery at Liverpool University, and he was vice-president of the Liverpool Medical Institution. His contributions to medical literature were on the purely clinical side; the aloof attitude of the research worker and academic scientist was entirely alien to his nature.

"To draw a satisfying picture of a personality so many-sided as that of Frank Jeans is impossible," writes Dr. Douglas Bigland. "He was a man of many dimensions, and any conventional presentation of his character must seem flat and out of perspective. An impressionist portrait, a mere series of glimpses, can alone be attempted. In such a 'silent picture' the man's wonderful gift of speech is difficult to portray. Undoubtedly Jeans will live in the memories of his friends as one of the most accomplished orators and after-dinner speakers in their experience. Each one must treasure particular examples of his brilliance. For me the recollection of his speech at a school reunion dinner when he proposed the health of the late Lord Birkenhead, another old boy of the school, and engaged in a battle of wits with that not unskilled opponent I still cherish as something which can never be equalled. No function was complete without a speech from Jeans, and he never failed to reach that level of high endeavour which his artistic soul demanded. It would be entirely wrong, however, to think that his wit was the result of careful elaboration. He was the delight of committee meetings and other gatherings where in a few words of flashing humour he would sum up a case and leave nothing more for anybody else to say. In defiance of natural law he made the sun shine on many dreary evenings. His clinical aphorisms, well salted with wit as they always were, tickled the palate and aided the mental digestion of his students in such a way that to forget was impossible. Behind all his wit was a profound clinical acumen which won the admiration and envy of his colleagues. To him surgery was no mere academic study but a living thing.

MR. FRANK JEANS

[Photograph by Burrell and Hardman

"Nobody could know Jeans long without realising that he was at heart an artist. His love for the theatre and everything connected with it was the breath of life to him. Everything he said or did had a dramatic element, an originality, an unexpected turn, which was wholly delightful and refreshing. Even surgery one felt sometimes had become almost a department of dramatic art. His wide tolerance and his understanding of all sorts and conditions of men were remarkable, and it is difficult to imagine any circumstance in which he would not be perfectly at home or any situation of which he would not be master. He never forgot his Scottish descent, and he loved to tilt against the foibles of his countrymen of whom he was so proud. Doubtless it was this inheritance which made the artist also a man of affairs, and gave to his judgment a rare value. Lastly, Jeans was intensely interested in the art of living; particularly in its branches of sympathy, ready understanding, and friendship. He was given many talents and, like the good and faithful servant, he was not content to bury them in the ground; rather he developed them constantly and strenuously to satisfy his strivings towards unattainable perfection, and in the kindly service of his friends and patients. 'His was a vivid and vitalising spirit, warm and genial as a fire on a winter day, fresh as a western breeze in spring.'

"It is one of the consolations of growing older that as the future gets less and less the past becomes an ever-increasing storehouse of memories of all the wonderful things one has seen and all the wonderful people one has known. In such a storehouse the memory of Frank Jeans will have an abiding place for ever."—A. D. B.

ROBERT HAMILTON RUSSELL, F.R.C.S., F.A.C.S. (Hon.)

WE regret to announce the death of Mr. Robert Hamilton Russell, the well-known Australian surgeon, on April 30th, from injuries sustained in a motor accident.

Robert Hamilton Russell was born at Farningham, Kent, in 1860, and was the son of the late Mr. James Russell, of Farningham. He received his early education at Nassau School, near London, and from there went to King's College, London. At King's College Hospital he was a student under Lord Lister, and later house surgeon, and in the Mackenzie oration which he delivered at Canberra last year he dwelt with pride on his training under Lister and acknowledged his great debt to him for the inspiration he received in his early years. This, no doubt, was the foundation of the outstanding work Hamilton Russell himself did in Australia. He qualified as M.R.C.S., L.R.C.P. in 1882, served also as house surgeon to Dr. William Playfair, and obtained the diploma six years later of F.R.C.S. For a period of two years he was house surgeon to the Shropshire County Hospital, and before going to Australia he spent a considerable time in hospitals on the Continent, so that he was remarkably well equipped when, in 1889, he went to Melbourne. There he practised until about seven years ago; was surgeon to the Alfred and to the children's hospitals, and was soon recognised as a leading consultant. In 1899 he read a paper at the Inter-Colonial Medical Congress in Brisbane, entitled the Ætiology and Treatment of Inguinal Hernia in the Young which attracted much attention. This paper and later researches into the cause of hernia received widespread notice among surgeons. His views, after a long controversy, were generally accepted, and form the basis of the modern teaching on the ætiology of inguinal hernia. Other writings of the same high standard followed, of which perhaps the most outstanding were on the subjects of urethral stricture and fractures of the femur. He was the first to point out that complete resection of the involved section of the urethra in stricture could be carried out, and that, provided the roof of the urethra was joined, the floor could be left widely open with the certainty of its re-formation. His teachings on the treatment of fractures of the femur are widely known in Australia, and his methods are employed in many children's hospitals there and elsewhere.

MR. HAMILTON RUSSELL

In August, 1914, Hamilton Russell was in England, and was thus engaged in military service at the beginning of the struggle. He went to France with the British Expeditionary Force. He returned to Melbourne with the rank of colonel, and was then attached to the base hospital at St. Kilda and the Caulfield Military Hospital. His surgical skill was steadily exemplified from the beginning until the cessation of hostilities. When the formation of the Royal Australasian College of Surgeons was projected he took an active part in the preliminary procedures, was one of the founders in 1927, and a member of the Council of the College since its inception. At the time of his death he was censor-in-chief to the College, and controlled all admissions to the Fellowship.

Hamilton Russell was a man of singularly attractive disposition and character. The affection in which he was held is shown by the unusual number of tributes that have been made to him during the latter part of his life. In recognition of his work for the Alfred Hospital, the new community block at the hospital has been named the Hamilton Russell House, and a bust of him by Paul Montford stands at the entrance to the hospital. As a tribute to his work for surgery, the Fellows of the Royal Australasian College of Surgeons two years ago presented him with his portrait in oils painted by the late George Lambert, A.R.A. He was at the same time elected an honorary Fellow of the American College of Surgeons. He exercised a remarkable influence on surgical methods in Australia, as well as on the status of the medical profession generally. He is destined to be regarded as one of the foremost pioneers of surgery in the Commonwealth.

CORRESPONDENCE

THE POOR-LAW SICK WARDS

To the Editor of THE LANCET

SIR,—In my article in your issue of May 27th I hazarded the estimate that in 1929 one in ten of the 90,000 poor-law sick beds (England and Wales) were occupied by surgical and acute patients, and the rest by chronics. I indicated that the fraction was greater in the urban than the rural areas. Mr. Eason in your issue of June 17th gives some useful figures indicating, for London only, that the fraction there is much more than one-tenth. On the other hand the Registrar-General's figures show that in London the ratio of deaths in poor-law sick wards to total deaths in the locality is much higher than in the provinces, and these numerous admissions of persons on the point of death must usually be classed as chronics. Acute *v.* chronic is the first outline of classification, but borderline patients who will be classed by different authorities on different sides of the line are quite numerous. But whether the true fraction in any area is one-tenth or three-tenths does not affect my proposition that in most towns and counties it will be more convenient that the management of the chronic sick should be closely associated with the management of the non-sick indoor poor who are very similar people, and that the cleavage in management should come between the chronic and the acute sick. I believe that in France, also, the distinction between the "hospice" for chronic sick and the "hôpital" for the acute is general.

But London is not typical, nor indeed are the largest of the provincial towns, for they have such a number of hospitals. The more normal type is the county town with one voluntary hospital doing the surgical and acute work for both town and county, and one big poor-law sick ward for the town and several small ones for the county, the former doing a small but increasing amount of acute work but the latter doing none. The local councils are now groping about considering with which of two Acts of Parliament they should consider their sick wards to be associated. But these mere legalities fail to allot, and used as titles fail to indicate, any medical aim, and consequently lead only to administrative confusion.

I would protest against Mr. Eason's assertion that the Local Government Act has "separated sickness rom pauperism.” I suggest that that statement s merely a playing with words without reference o the ideas which they represent. What our fathers alled pauperism has now been relabelled public ssistance, and presumably in the future as in the past sickness will be one of the principal reasons why people need to apply for public assistance. Some people think to have reformed the poor-law by giving to outdoor relief the new label of domiciliary relief, it is equally ineffective to relabel the former poor-law sick wards as public health hospitals while keeping the same doctors, the same nurses, the same diseases, and the same buildings.

I am, Sir, yours faithfully,

Cambridge, June 25th, 1933. W. D. BUSHELL.

A FOREIGN BODY IN THE HAND

To the Editor of THE LANCET

SIR,—A woman, aged 67, was recently admitted to the out-patient department of St. Mary's Hospital with an injury to the right hand. A radiographic examination, besides showing an oblique fracture of the fifth metacarpal, also demonstrated the presence of a portion of needle 1 inch long, lying in the depths of the fourth intermetacarpal space. On being questioned concerning this foreign body the patient remembered well having run a needle into her hand, and as there had been at the time some discussion as to whether it should be removed or not, she was able to fix the date exactly—viz., 1883—50 years ago. During the whole of that period she had had no single symptom referable to the presence of the needle in her hand.

The moral to be drawn from this case seems to be the avoidance of the many useless and often mutilating operations performed (especially on the hands and feet) in the search for foreign bodies which, in most cases, can be safely left to look after themselves. Unless a foreign body is either so accessible as to be removed with ease, or so placed that it gives obvious symptoms, a search for it would seem to be both unwise from the surgeon's point of view, and unnecessary from the patient's.

I should like to thank Mr. C. W. Gordon Bryan, on whose behalf I saw this case, for permission to publish this note.—I am, Sir, yours faithfully,

ARTHUR E. PORRITT,
Surgical Registrar.

St. Mary's Hospital, W.2, June 26th, 1933.

SWIMMING BATH DANGERS

To the Editor of THE LANCET

SIR,—The leading article in your issue of June 17th concerning the observations and recommendations of the American workers, Mallmann and Cary, with regard to the bacteriological examination of swimming bath waters, includes the following statement :—

> “The contention of the authors, that the routine methods of examination of swimming-pool water treated with chlorine, chloramine, or any similar bactericidal substance may give an entirely false sense of security, would seem to be clearly established ; and their recommendation that the source of error they have indicated should be removed by neutralising the free chlorine with sodium thiosulphate when the sample is collected—since routine testing at the bath side is obviously impossible—merits serious consideration.”

We entirely agree with this, but would point out that this source of error has for years been recognised and eliminated in the above-mentioned manner by ourselves and other bacteriologists engaged in British waterworks practice, and reference is made to this matter in the fourth edition of the “Examination of Waters and Water Supplies” (p. 691). Since so many drinking-water supplies are to-day treated by chlorination or its modifications, it is equally important to observe the same precautions in these cases also.—We are, Sir, yours faithfully,

JOHN F. BEALE,
E. V. SUCKLING.

The Counties Public Health Laboratories, Queen Victoria-street, London, E.C., June 22nd, 1933.

INTESTINAL TUBERCULOSIS

To the Editor of THE LANCET

SIR,—I hope that Dr. McLaughlin's interesting paper in your issue of June 24th will stimulate further inquiry into the early diagnosis and treatment of intestinal tuberculosis. X ray examination after a barium meal has certainly facilitated the diagnosis, but physical signs and symptoms are, in my opinion, of still greater importance. Fishberg (“Pulmonary Tuberculosis,” p. 158) goes so far as to say that with autopsy control X rays only give a correct diagnosis in 50 per cent of cases, whereas with clinical observation 75 per cent is the figure reached. I can fully endorse Dr. McLaughlin's statement that when taken early and properly treated, intestinal tuberculosis has a moderately good prognosis. I have so far been disappointed with cod-liver oil and tomato juice, possibly because the patients treated were already on a diet unusually rich in fresh vegetable produce and animal fat. Light treatment I have found useful in raising the general health in a considerable proportion of cases, but in others minimal doses cannot be exceeded without the production of unfavourable symptoms and the treatment is best abandoned. Light is much more useful in peritoneal than in intestinal tuberculosis. As regards other remedies, I think the main point to have constantly in one's mind is that a tuberculous intestine, like any other organ affected by the disease, requires rest. Foods containing much fibrous residue should be avoided as liable to irritate the wall of the bowel; similarly if milk, peas, or beans cause flatulent distension they must be excluded. Intravenous injections of calcium chloride, which must be given for a period of many months, I have found of great value ; I believe they act by reducing the irritability of the smooth muscle of the intestinal wall, and thus providing rest to the affected part. Most important of all, so long as active symptoms are present and for some time afterwards, the patient should be rested strictly. Infection of the bowel by swallowed sputum and continued irritation by the same means may often be prevented by the timely use of artificial pneumothorax, especially when a cavity is present.—I am, Sir, yours faithfully,

ANDREW MORLAND.

The Mundesley Sanatorium, Norfolk, June 27th, 1933.

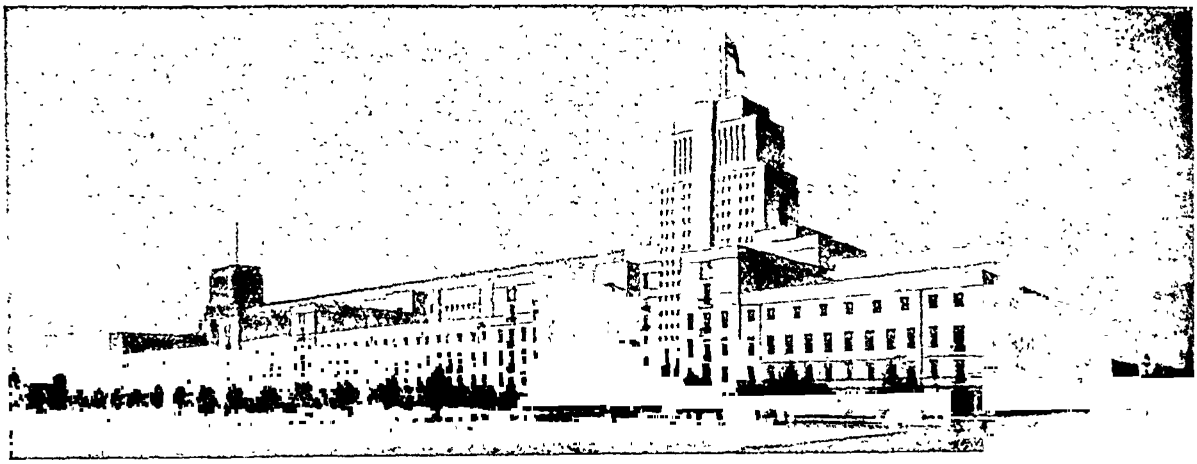
PERSONS AND SITUATIONS

To the Editor of THE LANCET

SIR,—When reading an examination paper lately I came across the following sentence : “Sulphonal is very useful in cases of insomnia in which *the case* (my italics) after sleeping soundly until about 4 A.M., &c.” This strikes me as a choice example of that tendency to confuse “case” and “patient” which is becoming so frequent in medical writings, and I think you would be doing a service by using your influence to check it.—I am, Sir, yours faithfully,

Devonshire-place, W., June 24th. ROBT. HUTCHISON.

⁂ It is not only flurried examinees who thus misuse English ; the error is corrected weekly in important contributions to our columns, and sometimes wins its way into print by persistence.—ED. L



Perspective drawing of the new buildings viewed from Montague Place, looking northwards along Malet Street

LONDON'S UNIVERSITY

"A NOBLE ENTERPRISE"

IF, as has been aptly said, the design of London's university resembles that of a battleship, the foundation of its embodiment in stone by His Majesty the King on June 26th was as inspiring a ceremony as the launching of a big ship. It provided occasion for a display of robes and hoods at least as rich in texture and colour as the flags of the many nations whose learned bodies sent delegates; and the order of proceedings was so planned that while decorum was in nowise sacrificed, the decorative value of academic panoply was exploited to provide a pageant that will not soon be forgotten by those privileged to witness it. Stands, erected on silvered metal, provided seats for 3000 persons on a plot of ground just opposite the ceremonial dais. These stands seemed nearly full an hour before the King and Queen were expected; but when the procession of professors and readers in the various faculties, led by their respective deans, reached the stands after circling the arena, they found places each next to his guest. A second procession consisted of the official staff of the University; the standing committee of convocation; the senate; the court; the representatives of sister universities abroad; the chancellors, vice-chancellors, and principals of universities and university colleges in Great Britain and Ireland; the leaders of London civic life; and finally, the principal officers of the University. Lord Athlone, as its chancellor, and Councillor Fred Howard, mayor of Holborn, received the King and Queen, with whom was Lord Irwin, president of the Board of Education, and presented to them Prof. L. N. G. Filon, vice-chancellor of the University; Mr. S. L. Loney, chairman of convocation; Lord Macmillan, chairman of the university court; Sir Ernest Graham-Little, M.P., chairman of the external council; and Mr. Edwin Deller, LL.D., principal of the University.

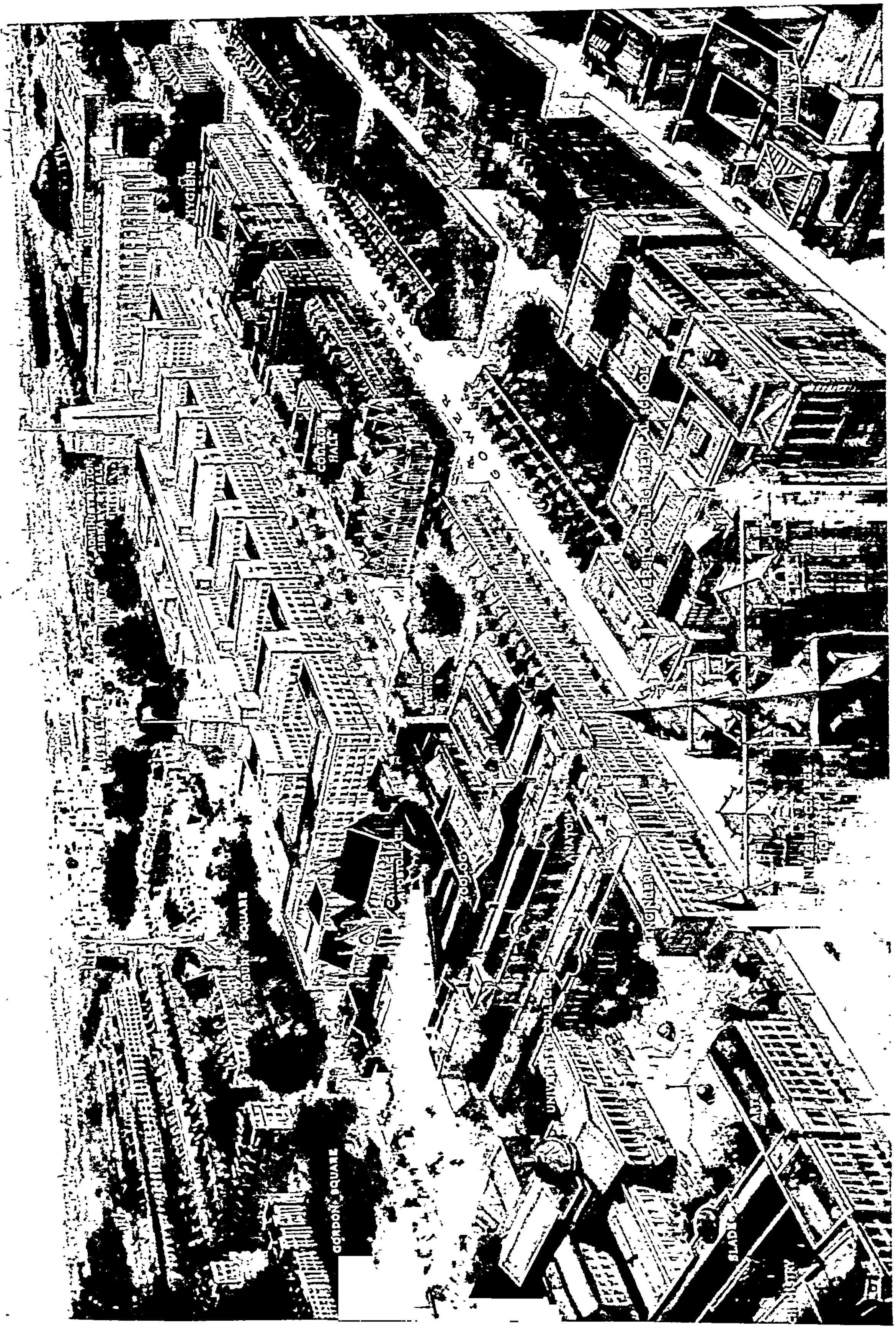
In the course of his address the Chancellor spoke of the abiding faith in the great future of the University held by those who had watched her achievements in the past. "During her span of life," he said, "she has sailed majestically through stormy seas and calm waters as all ships must do that travel a great distance, and is now riding triumphantly on the wave of success and progress. The students in her colleges and under the direction of her teachers number over 12,000 and the numbers of external students are not less." The University had striven to fulfil the great purpose ordained in her charter "to hold forth to all classes, without any distinction whatsoever, an encouragement for pursuing a regular and liberal course of education." But she had never till now possessed a home of her own, suited to her special needs and worthy in spirit and in form of the great city whose name she bears.

The King, in reply, said that the University, of which the Queen and he were proud to be honorary graduates, had now completed a century of distinguished and honoured life, and that all would rejoice to see the beginning of a finely planned group of buildings which would serve as headquarters for her far-reaching work and influence. He continued:

> "I count it of good omen that in these difficult times we have the opportunity of showing an unshaken faith in the inestimable benefits of knowledge and education. No less auspicious is the alliance in this good cause between friends of education in the Old World and the New. The Rockefeller Foundation, our own Government, the citizens of London in corporate and in private capacities all share in a memorable achievement.
>
> "In addition to the chancellors of British universities, we welcome here to-day representatives of foreign and dominion universities and of learned societies, whose presence lends a special interest to the proceedings.
>
> "Bloomsbury has long been a centre of learning, and it is appropriate that we should inaugurate here, on this great site, a stately plan of buildings worthy of London and of her University. I hope that this noble enterprise, which has begun so well, may attain an early and triumphant completion."

The Archbishop of Canterbury then offered a prayer and the whole assembly sang a hymn.

The King crossed the dais to the great stone, which was suspended over a block of granite, where representatives of the Students' Union were presented to him. In a cavity in the granite was placed a casket containing documents pertaining to the occasion and coins minted in 1933; and using trowel, mortar, spirit level, and mallet the King, with the guidance of Mr. Charles Holden, the architect, Mr. George Burt, representing the contractors, and four workmen, laid the foundation-stone and declared it to be well and truly laid. A fanfare of trumpets sounded, further presentations were made, and having signed the visitor's book of the University, the



The University quarter as it will look when the buildings are complete

[Reproduced by courtesy of the Illustrated London News

King and Queen departed, as they had arrived, in an open carriage with an escort of household cavalry.

The organisation of this great occasion was beyond praise. The speeches were skilfully amplified so as to be audible to every person present withou distortion, and the informal reunion in the hug refreshment tent after the ceremony gave opportunity for personal contact between the dignitarie of the University and their well-wishers.

PANEL AND CONTRACT PRACTICE

Hotel Doctors

THE Panel Committee for the County of London passed the following resolution at its meeting on June 20th :—

> "That the committee do confirm the disapproval of this subcommittee (ethical) of the attitude of the management of certain hotels which endeavour to influence their employees to transfer to the lists of the hotel doctors concerned, and that members of the committee be asked to supply the ethical subcommittee with any definite evidence of the practice which they may be able to obtain in order that steps can be taken to secure its discontinuance."

The resolution was the outcome of a complaint by one insurance doctor (Dr. A) against another insurance doctor (Dr. B) that through his patient becoming an employee in an hotel to which Dr. B was the medical officer the management had brought pressure to bear on this insured person to transfer to the list of Dr. B. In the letter from the hotel to the medical secretary the management assure the committee that they fully recognised the insured person's right to free choice of doctor. Dr. B was the company medical officer and was in daily attendance on hotel visitors and staff, which the management contended was in the interests of the staff. It was, however, merely incidental that his name was mentioned to them, and no canvassing whatever was done on his behalf. They had, however, again renewed their standing instruction that no influence is brought to bear upon the staff in this matter. With regard to Miss S, they had made careful inquiries and were satisfied that no pressure was brought to induce the transfer to Dr. B's list. The housekeeper, however, did explain to her that for the convenience of the staff the company's doctor attended insurance patients, and Miss S indicated her willingness to transfer. As she did not hand in her card, she was subsequently reminded that if she still wanted to transfer she should bring her card for that purpose. Subsequently Miss S appeared somewhat undecided, but eventually brought her card. Had she not done so no action whatever would have been taken by them in the matter.

Free choice of doctor is still one of the cherished possessions of the insured person, but it sometimes happens that not only employees of hotels but maids in private houses will have pressure brought to bear on them to change to the doctor who usually attends that house. This insidious pressure does undoubtedly interfere with free choice, and it will naturally help to stop such practices if insurance practitioners will notify the secretary of their panel committee with details of any such case that comes within their own experience. The position is not without risk to the doctor concerned, for if it were proved that such canvassing was done with his knowledge and consent the General Medical Council would have no alternative but to remove his name from the Register.

Emergency Treatment

Two cases of interest came up before the same panel committee and gave rise to much discussion. In the first case a patient fainted. Relatives rang up the insurance practitioner, but as his telephone line was engaged they promptly rang up another docto who attended, gave the necessary treatment, and then submitted Form R62, the appropriate form on which to claim fees for emergency treatment. The subcommittee which considered the case had decided that they could not pass this claim, largely on the ground that the patient's relatives did not try really to get the proper doctor. They might, of course have rung up again or even have sent a messenger to the doctor's house, only half a mile distant. The expression used was that "no effective call" was made. The doctor who gave the treatment appeared before the main committee to maintain that this claim should be allowed. He started by saying that he not only practised in the East End but lived there and that as many of his colleagues lived away from their practices he had much emergency work to do In this particular case he charged the insured person 5*s.* for the visit and treatment, and gave an official receipt (R52) for the money. In this, as a matter of fact, he was wrong, because this form is only applicable when an insured person fails to prove title to benefit by showing a medical card, whilst stating he is so entitled to treatment. The patient sends this form to the insurance committee, who refund the money paid to the doctor and deduct that amount from his remuneration if, but only if, the insured person is entitled to medical benefit. In this case there was no question of title to benefit, so the insurance committee wrote to the doctor telling him to make an application for an emergency treatment fee, as the 5*s.* paid by the patient was being refunded to the patient through this Form R52. If the panel committee allowed his claim he would then receive 7*s.* 6*d.*

The decision as to whether a particular service is an emergency rests with the panel committee. After considering the facts of the case they have to be satisfied that the patient did seriously try to get his own doctor. Here the main committee eventually decided, telephones being what they are, and relatives being frightened by the patient's condition, that it was reasonable to ring up another doctor as the first line was engaged. The case was therefore an emergency, but that the payment of the fee for it should be deducted from the general panel fund, and not from the insurance practitioner concerned, who never received any message at all.

The second case was an emergency claim by a practitioner who was called to see a dying man. Here no payment was made, but the practitioner submitted an emergency fee claim against the insurance doctor of the patient. The claim was not allowed. The story was that this patient was under the care of his own doctor, who saw him on the day before his death, which was obviously then imminent. As he was dying a natural death, and was beyond any human aid, this doctor told the son who came to see him about 4 A.M. the next morning that he could not do his father any good, and that a visit would be useless. Apparently he was again called about 6.30 to see if the patient was dead and to certify to that effect.

As no visit was made until later in the day the relatives called in Dr. B. The patient died a quarter of an hour after Dr. B's visit. This case could not be allowed as an emergency fee claim because the patient's own doctor was available. The scheme for emergency fees only relates to cases where either the patient's own doctor is not available, or the patient is not able to travel so far to see his own doctor; or, as in the previous case, where the patient is unable to make an effective call. Here the patient's insurance doctor decided *not to visit.* The relatives, therefore, called Dr. B, who should charge them for his attendance as a private case, but quite clearly it was not a proper claim for the emergency treatment scheme, although some members of the committee apparently disagreed with the chairman's ruling.

It should be pointed out that when the panel committee decide to reject a claim for an emergency fee it is always open (though sometimes difficult) to obtain payment from the insured person as if he were a private patient. The doctor must, however, wait until the panel committee's decision is given before charging a fee.

What is a Partnership?

Dr. C. Luther Batteson writes: "Surely in the comment on What is a Partnership? in your issue of June 17th you are making difficulties unnecessarily. It appears to me that the meaning of the regulation quoted is clear. In the regulation: 'A practitioner will not be deemed to be a partner unless . . . he is entitled to a share of the profits . . . not less than one-third of any other partner.' *Any* obviously includes *all.* If the regulation said *all other* partners, it would be argued that it meant one-third share of the shares of all other partners added together!

"To take your illustration of three partners A, B, and C, taking a fourth partner D; why does he arbitrarily take a third part of C's share? Surely A and B are also partners, and are included in the term 'any other partner'; in which case as he is not precluded from having a share greater than one-third of *any other partner* his share *must not* be less than one-third of the share of A, who has the greatest interest in the practice. If A's share is £3825, and D's share is £175, *it is impossible to say that* D has not less than one-third of any other partner."

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Emergency Treatment of Road Accidents

In the House of Lords on Thursday, June 22nd, Lord Moynihan moved the second reading of the Road Traffic (Emergency Treatment) Bill.[1] He said this short measure sought to redress certain inequities which urgently required relief. It was not disputed that the Road Traffic Act, 1930, in connexion with Section 36 had had a few unsatisfactory consequences, and the cumulative experience of the medical profession had shown, or at any rate suggested, that not the least of these grievances was concerned with the confident belief entertained now by the public that under the system of compulsory insurance in reference to third parties payment was made almost automatically both to the out-patient departments of hospitals and to general practitioners who rendered emergency treatment. That view, if it was held by anybody, was entirely inaccurate. The general practitioner who attended and rendered first-aid, or as the profession preferred to call it emergency treatment, received in a very large number of cases neither acknowledgment of his services nor payment for them.

With the help of the British Medical Association it had been computed that not more than one medical man in five who was responsible for emergency treatment received either any verbal acknowledgment of the services rendered by him, or any payment for those services. When a payment was received it was only with difficulty, partly because of the fact that the owner of the motor-car lived at a distance from the place where the injury was sustained and partly because of the advice given by insurance companies that any payment made by the owner of a motor-car which had caused an accident was an admission of the guilt of the driver. The cost to the medical man who rendered this first-aid was sometimes considerable. Drugs, dressings, and appliances had to be forthcoming at once, and he had personal knowledge of not a few cases in which a considerable amount of damage had been done to furniture and other things in the doctor's surgery with the result that they had to be renewed or renovated. There was no need to remind their Lordships of the immense amount of gratuitous services rendered to the public of this country by the medical profession. So far as his own experience was concerned he had had inquiry made and found this rough result, that 60 per cent. of the work he had done in connexion with his profession had been unrewarded financially, and he was not in any sense distinguished from the large number of his colleagues who were similarly placed so far as gratuitous services to the public were concerned.

There was, of course, one tribute which he thought the medical profession deserved, and that was in connexion with the voluntary hospitals of the country. All the important services rendered by them, especially in the great teaching hospitals, received no financial, or very slight, financial reward. Among the medical profession it was difficult to obtain unanimity, but if there ever had been unanimity on any point it existed in connexion with what they felt to be an injustice to medical practitioners in connexion with the rendering of emergency treatment. It was not right either morally, or he hoped legally, that services of that kind should be rendered and no payment made in return. He could not say that the medical profession as a whole felt any resentment about the matter, but a certain dismay existed among medical practitioners that their services should be so often demanded and so very rarely rewarded. In the Road Traffic Act, 1930, no provision whatever was made for payment for services rendered in the out-patient departments of the hospitals. Yet in those departments a very considerable expenditure might occasionally be required in the taking of photographs, the application of splints and bandages, the giving of anæsthetics, the suture of wounds, and in other directions, and it was important to point out that both in the out-patient departments of hospitals, and in the consulting-rooms of those who were first called in to treat the patient, such acts were carried out which made in many cases a very considerable difference to the amount which the insurance companies might have to pay. The change from simple to serious conditions was prevented by timely treatment.

The loss to hospitals, so far as in-patient treatment was concerned, was shown in a chart which he had made available for the information of their lordships. So far as out-patient treatment was concerned it had been assessed—he did not say accurately, but as nearly as possible—that 35,000 out-patient treatments were given in a year at a cost of roughly £12,000 and not a penny of that sum was returned to the hospitals. He had proposed in this Bill that the maximum fee payable for emergency treatment should be three guineas. This sum had been criticised from some quarters as being inadequate, and from others as being excessive. The King Edward Hospital Fund suggested for out-patient treatment a larger sum, but they included in the treatment received massage given, if necessary, to patients after the first attendance. He thought that was perhaps not the best way of securing adequate massage treatment over a long period. At his own hospital, for example, workpeople subscribed £500 a year for massage to be given to their patients, and in other hospitals a similar charge was made. It had been suggested also that the sum of three guineas might be a little excessive; the sum of three guineas, however, was a maximum and there was no reason for the maximum to be reached.

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[1] Set out in THE LANCET, June 10th, 1933, p. 1261.

The report of the Road Fund for the years 1930–31 showed that public conveyances were engaged in accidents in 28 per cent. of the total number, private conveyances in 59 per cent., and commercial motors in 13 per cent. In 1931–32 the figures were respectively 19 per cent., 54 per cent., and 36 per cent., and the driver had been held responsible in these three categories in the first year in 62 per cent. of cases, and in the second year in 57 per cent. of cases. It seemed to be no hardship that a preliminary demand should be made upon the driver and the motor vehicle for funds which would pay for the out-patient department treatment and for treatment given by the general practitioner. There were two possible ways by which the driver could secure himself for the payment of this money. The sum paid for a driver's licence might be increased from 5*s*. to 7*s*. 6*d*. On the other hand the insurance premium might be increased by the same comparatively meagre amount. There were, he understood, 2,800,000 motor licences issued in the country to-day, and if half-a-crown was added either to the premium charged by the insurance companies or to the price of a driver's licence a sum which would be more than sufficient, even including administrative expenses, would be then available for the payment of the two groups of people on whose behalf he was pleading that day. He thought that the objection which had been taken by some of the motor journals to payment to medical practitioners and out-patient departments of hospitals out of funds so derived could only be due to prejudice, and prejudice, as it was so often in other directions, was only the emotional reaction of ignorance to truth. When the truth was disclosed, as he thought he had disclosed it that day, he thought that there could be no reasonable objection to his proposal. He understood that the Earl of Plymouth, if the Bill was read a second time, intended to move that it be referred to a select committee, and, if that was the wish of the House, he would be very happy to accept the suggestion.

The Earl of HALSBURY in supporting the second reading, agreed that the Bill for the drafting of which he was largely responsible, was imperfect. He hoped that if the Bill went to a select committee some method would be devised of providing for cases where the driver drove on without stopping and therefore the car could not be identified and the claim made within 72 hours.

The Earl of ONSLOW, the chairman of committees, said he welcomed very strongly the principle which Lord Moynihan had introduced for securing payment to medical men and hospitals for emergency treatment.

Lord DANESFORT said the Bill sought to remedy what was undoubtedly a grave injustice to the medical profession.

The Earl of KINNOULL supported the Bill.

Lord LUKE said he was in perfect sympathy with Lord Moynihan in moving the second reading of the Bill. The King Edward Hospital Fund combined with the British Hospitals Association in order to give evidence before the Select Committee set up to consider Lord Danesfort's Bill dealing with compensation for motor accidents. An amendment has been submitted to that Committee that was likely to meet the hospital view. If Lord Moynihan's Bill was referred to that Committee it would be unnecessary for the King Edward Hospital Fund and the British Hospitals Association to give evidence again, but if the Bill went to another Committee a similar amendment might have to be proposed.

Earl BUXTON, in supporting the Bill, said that he had seldom heard a better case made out by the promoter of a Bill than had been made out by Lord Moynihan.

Viscount KNUTSFORD said he hoped that no weight would be attached to the suggestion of Lord Onslow that this additional tax should be placed upon the motor interests. If that were done the position would be extremely confused. He was also opposed to the suggestion that people besides the medical profession should be compensated for any first-aid that was given. Surely there were enough people now who crowded round any motor accident without the additional attraction of possible compensation. Only professional aid should be compensated. He thought that this extra tax should be put on the driver's licence. An extra half-crown on the cost of a driver's licence would bring in £300,000 a year, and he thought that Lord Moynihan and the British Medical Association would agree that that sum would be more than sufficient to compensate doctors for the services they rendered in the way of emergency treatment.

The Earl of PLYMOUTH (Parliamentary Secretary for the Colonies) said that he entirely agreed that medical practitioners and hospitals had a very real and serious grievance. It was, however, very difficult to find an absolutely suitable remedy which was easy of application and which would not cause any injustice. Lord Moynihan had originally suggested the raising of a central fund contributed to by insurance companies. In the present Bill Lord Moynihan had departed from that method which had something in its favour, and proposed to place liability on the owner of any vehicle which was connected with an accident, irrespective of whether that owner had shown any fault or negligence himself. Special circumstances might exist, but their Lordships ought to realise that this proposal ran counter to the accepted and established principles of jurisprudence. Furthermore, a man who would be liable under the Bill for something for which he might not be responsible would not be given any opportunity of recovering what he had to pay from the person who was actually negligent. A sense of injustice would thus remain which should be avoided if possible. He was advised that an additional levy of 2*s*. 6*d*. on driving licences would produce something like £350,000 yearly, but such a scheme, although it might be suitable, might raise difficulties of its own, and would almost certainly result in a reduction of the voluntary payments at present made. He was not really satisfied that the provisions of the Bill would achieve the immediate objects which Lord Moynihan had in view. Clause 5 dealt with vehicles owned by the Crown. If this Bill proceeded further, as he hoped it would, the Government would have to ask that this clause should be deleted, or at any rate considerably modified.

The Earl of IVEAGH said that as Chairman of the Select Committee to which this Bill was to be referred he welcomed the additional problem because the Committee had had it in their minds for some time. The Committee would also welcome very much the presence of Lord Moynihan to help them in their deliberations.

The Bill was read a second time.

After some discussion on the Select Committee to which the Bill should be referred,

The Earl of PLYMOUTH moved a resolution, "That the Bill be referred to the same Select Committee to which the Road Traffic (Compensation for Accidents) Bill had been referred, and that Lord Moynihan be added to the Select Committee."

The motion in this form was then agreed to.

Public Health in Scotland

On Thursday, June 22nd, the House of Commons went into Committee of Supply on the Civil Estimates for 1933. Sir D. HERBERT (Chairman of Committees) was in the chair.

Mr. SKELTON (Under-Secretary of State for Scotland), after expressing a modified satisfaction in housing progress in Scotland, said that he was not altogether satisfied with the figures which were before the committee in the annual report on maternal and infantile mortality and infectious diseases. A serious and remarkable thing was that maternal mortality had been increasing steadily ever since 1855. An investigation to extend over six months into every case of childbirth in Scotland had been instituted in December, 1932, the results of which should supply very complete data. The infant mortality showed a slight rise. For years it had been definitely higher than the English rate; this might be due to climatic conditions. An epidemic of scarlet fever in Scotland had brought up the cases from 18,000 to 28,000. This raised the question of the importance of immunisation against this and other diseases to which even more would be paid in the future.

The Secretary of State for Scotland had now nominated a committee to deal with the public health services of Scotland (see p. 55).

Mr. DUNCAN GRAHAM thought that the main cause of the increased maternal and infantile mortality was poverty. The Secretary for Scotland ought to raise this matter in the Cabinet and try to get some agreement by which medical benefit would be secured to those who were unemployed, and who were threatened with the loss of medical benefit at the end of this year. It would be generally agreed that if any part of the medical profession had made sacrifices during the last few years it had been the doctors in the rural areas of Dumbarton, Renfrew, and Lanark. He did not think that any more sacrifices should be asked from that section of the medical profession.

Sir ARCHIBALD SINCLAIR said he was glad to hear that the inquiry of the Scientific Advisory Council into maternal mortality was being pressed forward, but he would like to know, in view of the seriousness of the problem, why there was a reduction in the Estimates from £3200 to £2700 in the grant for the training of midwives and health visitors.

Mr. McGOVERN moved to reduce the vote by £100. He said not enough was being done in housing.

Captain ARCHIBALD RAMSAY said there was something like 20,000 men in Scotland who fell out of covenanted National Health Insurance benefit in December last. All the parties concerned—the patients and the doctors who were responsible for the health and welfare of these men, as well as the insurance committees—were all of the same opinion, namely, that if it could possibly be arranged administratively it would be in the interests of all that these 20,000 patients should not be transferred to the care of new doctors with the loss of time and money that must necessarily be involved, and the general dislocation that the patient must endure when he changed his medical officer. He thought that by some adjustment of either local or national machinery, or perhaps both, this difficulty could be got over.

Mr. SKELTON, replying to the debate, said that when the evidence taken during the examination into the question of maternal mortality was considered by experts it might be possible to trace the cause of puerperal sepsis and to tell whether it was more frequent in institutions or in childbirths at home. As regarded infantile mortality, it seemed the variability of climate was a very strong factor, and his own judgment from the information before him was that the hard times through which the country was passing were a very important factor. In regard to the withdrawal of medical insurance benefits from those who had been unemployed for a certain period, while it might be possible to deal with the matter by some administrative manipulation—and he was not confident that it was possible—such action would require the consideration of the Cabinet because it would involve an alteration of policy from that of the 1932 Act.

The motion to reduce the vote was rejected by 149 votes to 29.

Manchester Royal Infirmary Bill

On June 26th, in the House of Commons, the Manchester Royal Infirmary Bill (which has been changed from the Manchester Corporation Bill) was read a second time.

HOUSE OF COMMONS

MONDAY, JUNE 26TH

Indian Medical Service

The Duchess of ATHOLL asked the Secretary of State for India the number of British and Indian officers, respectively, serving in the Indian Medical Service in 1920, 1921, and 1932.—Sir S. HOARE replied: The earliest return giving the composition of the All-India Services is that for the year 1922. The figures for the Indian Medical Service (Civil) for the years 1922 and 1932 are as follows:—1922: European, 326; Indian, 35; total, 361. 1932: European, 195; Indian, 97; total, 292.

Clinic for School-children in Leyton

Sir WILFRID SUGDEN asked the Parliamentary Secretary to the Board of Education what further provision was to be made for the borough of Leyton, Essex, by way of clinics as to the sight, hearing, throat, and limb care of the school-children of that borough; and if he would consider dealing with the younger children upon the lines of the Margaret Macmillan type of school.—Mr. HERWALD RAMSBOTHAM replied: With regard to the first part of the question, plans for a new clinic to deal with minor ailments, refraction, and dental work, were approved by the Board of Education in July, 1932. The clinic is being built and is expected to be ready this year. As regards the second part of the question, my noble friend is unable in present financial circumstances to entertain proposals for new nursery schools.

TUESDAY, JUNE 27TH

Cases of Nystagmus

Mr. TOM SMITH asked the Home Secretary how many cases of nystagmus were certified in each of the years from 1920 to 1932 inclusive.—Sir JOHN GILMOUR replied: The number of cases of nystagmus for which certifying surgeons in Great Britain gave certificates of disablement during the years 1920 to 1931 inclusive were as follows:—

1920	.. 2216	1923	.. 4050	1926	.. 1863	1929	.. 2677
1921	.. 1986	1924	.. 3446	1927	.. 2205	1930	.. 3248
1922	.. 4047	1925	.. 3564	1928	.. 2515	1931	.. 2829

The tabulation of the figures relating to the year 1932 is not yet complete. In a certain number of the above cases the decision of the certifying surgeons will have been reversed by the medical referee, but precise figures are not available.

NEW HOSPITAL FOR BLACKPOOL.—Lord Derby recently laid the foundation-stone of a new building to replace the present Blackpool Victoria Hospital which the medical report for 1932 declares to be out of date. During the year the wards, especially the female ward, were at times overcrowded. The accommodation of the out-patient department is so "insufficient and unsuitable" that the work of the staff is "greatly handicapped." Last year there were 2519 in-patients; the average daily number of beds occupied was 109, and the average stay in hospital was 15·83 days. The new building will eventually cost £200,000; the first part, now begun, will cost £150,000. The site is at Whinney Heys, on the borders of Stanley Park, the highest and quietest part of the town. The immediate undertaking comprises the administrative block, casualty receiving department, children's ward of 28 beds, paying patients' ward of 16 beds, surgical ward of 65, medical ward of 36, and maternity ward of 32 beds.

MEDICAL NEWS

University of Oxford

In a congregation held on June 22nd the following degrees were conferred :—

D.M.—C. W. C. Bain and A. M. Cooke.
B.M.—E. J. Baldwin.

At recent examinations the following candidates were successful :—

Pathology.—P. C. Alexander, D. R. Balcombe-Brown, J. H. Bartlett, G. E. M. Benson, C. A. Boucher, D. G. Burgess, Roy Clarke, P. E. Cresswell, K. B. Dawson, H. Fidler, J. H. T. Hanington, E. C. O. Jewesbury, R. Passmore, J. C. Prestwich, J. E. Scott-Carmichael, R. G. Silver, B. B. Waddy, and E. M. Fisher.

Pharmacology.—R. I. Bence, H. S. Brodribb, H. Burton, M. C. Chapman, R. N. B. Cridland, D. I. Crowther, H. Fidler, G. F. C. Hawkins, G. A. Hodgson, J. E. Lovelock, H. G. Lowden, W. P. Mallinson, C. I. Murphie, T. E. Ooi, R. Roaf, R. G. Silver, W. R. Trotter, J. W. A. Turner, C. B. I. Willey, G. M. Afoumado, and A. J. M. T. Barnes.

Forensic Medicine and Public Health.—J. E. Ayoub, H. J. Barrie, E. M. Buzzard, P. E. Cresswell, E. P. Edmonds, M. H. Evans, W. H. Fawcett, G. E. Godber, M. S. Good, G. S. Grist, J. H. T. Hanington, R. Kempthorne, R. W. G. Lancashire, J. W. Litchfield, P. H. Lomax, W. F. de C. Veale, and M. A. Jennings.

Medicine, Surgery, and Midwifery.—J. E. Ayoub, H. J. Barrie, H. R. Balhurst-Norman, J. H. B. Beal, G. E. M. Benson, F. E. Buckland, A. Carling, M. H. Evans, E. Fowler, I. H. Gosset, T. T. Hardy, D. A. Jennings, R. Kempthorne, J. E. Lewis, P. J. W. Milligan, J. E. Morley, P. E. F. Routley, René Thomas, C. M. Vaillant, Clifford Wilson (all these completing course for degrees of B.M., B.Ch.), and J. P. Child.

University of Cambridge

At recent examinations the following candidates were successful :—

THIRD EXAMINATION FOR M.B., B.CHIR.

Part I.: Surgery, Midwifery, and Gynæcology.—S. T. Anning, T. M. Bell, N. B. Betts, W. R. Billington, G. O. A. Briggs, J. C. Buckley, F. Clifton, E. L. Cohen, W. J. B. de Gruchy, J. H. Dixon, A. B. Evans, S. M. Evans, G. L. Foss, W. R. Gavin, W. E. F. Gough, E. M. Griffin, E. R. Hargreaves, N. H. Harwood-Yarred, J. D. Hay, E. C. Herten-Greaven, G. T. Hindley, A. C. L. Houlton, W. R. S. Hutchinson, L. G. Irvine, G. H. Jennings, A. Kekwick, J. H. Lankester, J. C. Lee, R. S. Lewis, W. H. Lewis, M. K. Martyn, F. S. A. Maw, W. B. Mumford, W. F. Nicholson, G. S. W. Organe, E. W. Price, E. G. Pyne, L. R. J. Rinkel, G. C. D. Roberts, H. J. M. Robinson, M. A. Rugg-Gunn, J. H. Shakespeare, J. Smart, J. T. W. Spiridion-Kliszczewski, S. M. Thompson, O. A. Trowell, J. G. Vincent Smith, E. O. Walker, G. E. Walker, H. C. M. Walton, W. F. Walton, G. L. Ward, V. H. Wilson, P. L. Holliday, F. C. Naish, M. C. A. Robson, R. A. Rushton, and E. D. Thompson.

Part II.: Principles and Practice of Physic, Pathology, and Pharmacology.—G. L. Alcock, S. T. Anning, W. C. Barber, H. Barcroft, G. F. Barran, C. G. Batty-Smith, W. T. C. Berry, E. J. M. Bowlby, G. O. A. Briggs, K. L. Buxton, R. Cairns, C. M. Carr, A. H. Charles, E. L. Cohen, A. G. Cross, W. Dykes Bower, G. L. Foss, P. H. R. Ghey, J. N. Groves, M. I. A. Hunter, W. R. S. Hutchinson, L. G. Irvine, J. G. Jones, D. Kyle, A. W. Langford, A. B. MacGregor, W. S. McKenzie, T. C. Maling, J. W. Maycock, A. Miller, M. P. Morel, J. G. More Nisbett, H. J. V. Morton, B. C. Murless, R. Q. Parkes, E. W. Price, J. S. M. Pringle, S. A. Propert, I. G. Robin, G. Scott, E. Sharp, E. P. Sharpey-Schafer, D. W. Smithers, J. G. C. Spencer, R. A. Sykes, E. W. Taylor, G. W. Thomas, H. B. Tipler, O. A. Trowell, T. M. Tyrrell, G. I. Watson, R. H. H. Williams, J. Wilson, D. K. Emery, and M. Sutcliffe.

University of Wales

At recent examinations the following candidates were successful :—

D.P.H.

Part I.—G. J. Roberts, Jean J. Smith, and Anne E. Williams-James.

Society of Apothecaries of London

At recent examinations the following candidates were successful :—

Surgery.—J. L. Cope, Univ. of Cambridge and Westminster Hosp.; S. A. De Souza, St. Mary's Hosp.; H. M. El Magidi, Univ. of Birmingham; T. E. Mitchell, Guy's Hosp.; and P. J. Purcell, St. Mary's Hosp.

Medicine.—W. H. Ekin, Univ. of Cambridge and Westminster Hosp.

Forensic Medicine.—E. Cohen, S. Gurevich, and S. G. Nathan, Charing Cross Hosp.; and A. W. Turner, St. Mary's Hosp.

Midwifery.—E. C. Dax, St. Mary's Hosp.; T. Gardner, Univ. of Leeds; A. E. Glanvill, Univ. of Birmingham; N. C. London, St. Mary's Hosp.; and R. M. Outfin, Guy's Hosp. and Univ. of Bristol.

The following candidates having completed the final examination, are granted the diploma of the Society entitling them to practise medicine, surgery, and midwifery: W. H. Ekin, A. E. Glanvill, S. Gurevich, and T. E. Mitchell.

University of London

At a meeting of the Senate on June 21st, Prof. L. N. G. Filon, F.R.S., was re-elected vice-chancellor for the year 1933–34.

The title of university professor of medical entomology was conferred on Dr. P. A. Buxton in respect of his post at the London School of Hygiene and Tropical Medicine, and the title of university professor of pharmacology on Dr. J. H. Burn in respect of his post at the College of the Pharmaceutical Society.

Mr. R. A. Fisher, F.R.S., who since 1919 has been engaged on scientific research in the statistical department at Rothamsted Experimental Station, was appointed Galton professor of Eugenics at University College.

University Studentships.—A post-graduate travelling studentship has been awarded to Archibald Gilpin, M.D. (King's College Hospital). It will be held for one year, and Dr. Gilpin will carry out research in Freiburg and Vienna on the physiology and pathology of the thyroid gland and on problems especially related to sporadic goitre and thyrotoxicosis.

The studentship in physiology has been awarded to Hugh Alexander Dunlop, M.D. (Westminster Hospital), who will carry on physiological research at King's College.

University of Glasgow

On June 21st the honorary degree of LL.D. was conferred on Dr. William Blair Bell, emeritus professor of surgery in the University of Liverpool. Among other recipients of the degree were Prof. Albert Einstein and M. Herriot.

Ordinary degrees were conferred on the following :—

D.Sc.—Amy M. Fleming, M.D.
M.D.—Mary A. Griffin and D. R. MacCalman (with high commendation); James Grant and A. W. Russell (with commendation); and J. W. MacG. Alexander and F. W. Martin.

University of Leeds

At a meeting of the council on June 21st, Prof. Harold Collinson, M.S., was elected to the chair of surgery, carrying the headship of the department of surgery, as from the beginning of next session, in succession to Prof. J. F. Dobson; and Mr. Alfred Richardson, F.R.C.S., was elected to the chair of clinical surgery in succession to Prof. Collinson. Mr. E. R. Flint, F.R.C.S., was appointed director of surgical research, in succession to Mr. L. R. Braithwaite, and Dr. S. J. Hartfall was appointed honorary demonstrator in medical pathology.

Epsom College

The eightieth annual general meeting of the Governors of Epsom College was held on Friday, June 23rd, 1933, at the Office, 49, Bedford-square, W.C., Lord Burnham, the President, being in the chair. In announcing the result of the election of pensioners and foundation scholars, the President commented on the pains taken by the conjoint committee to elect as foundationers the most deserving boys who at the same time would appear to be the most capable of utilising their great opportunity, and stated that the boys' fathers had practised in various parts of Great Britain: one in Glasgow, three in Lancashire, two in Yorkshire, one in Ireland, one in Sussex, one in Cheshire, one in Devonshire, and one was in the Indian Medical Service. The names of the successful candidates were published in The Lancet last week. In presenting the annual report of the Council the President asked the Governors to join him in congratulating Dr. Raymond Crawfurd, the Chairman of the Council, on the honour of Knighthood. Dr. Crawfurd then gave an interesting résumé of the works carried out at the College in the course of the past ten years, during which period the Council had endeavoured to do what normally would have taken 100 years. The report was unanimously approved.

Dr. R. Prosser White was elected a Vice-President of the College in appreciation of his generosity in founding prizes for the study of French and German or Spanish.

University of Liverpool

Dr. William Mowll Frazer, medical officer of health for the city and port of Liverpool, has been appointed to the chair of hygiene.

The Freemasons' Hospital

On Wednesday, July 12th, the King will open the new Freemasons' Hospital at Ravenscourt Park, Hammersmith. He will be accompanied by the Queen.

British Post Graduate Hospital and Medical School

The foundation-stone of the new building at Hammersmith is to be laid on July 17th. It is estimated that the scheme now to be carried out will cost about £200,000.

Central Middlesex County Hospital, Willesden

The new children's wing and electrical department of this hospital is being opened on Friday, June 30th, at 3 P.M. by Sir George Newman, chief medical officer of the Ministry of Health.

Hospital for Sick Children, Great Ormond-street

On Friday, July 7th, the Princess Royal will lay the foundation-stone of the nurses' house which is the first stage of the reconstruction which this hospital hopes to carry out.

Physiological Society

A meeting of this society will be held to-day, Saturday, July 1st, at 3.30 P.M., in the university laboratory of physiology at Oxford. The proceedings will open with a communication by Dr. C. E. Brunton on the pH of arterial blood during gastric secretion. The society will meet again at the Marine Biological Laboratory, Plymouth, on August 18th.

Visits to London Buildings

Four tours of historic London buildings have been arranged by King Edward's Hospital Fund during this month. On Wednesday, July 5th, at 11 A.M., Lord Onslow will be guide to a tour round the Houses of Parliament, and on July 13th, 22nd, and 25th parties will visit Westminster Abbey, the India Office, and Somerset House. Tickets may be had from the secretary of the Fund, 10, Old Jewry, London, E.C. 2.

Paddington Medical Society

At the annual general meeting of this society held on June 13th, Dr. W. G. Bendle was elected president, Dr. G. E. Oates vice-president, and Dr. Saul Crown hon. secretary for the ensuing year.—At the next meeting, to be held at the Great Western Royal Hotel, Paddington Station, on July 11th, at 9 P.M., Sir James Purves-Stewart will give an address entitled Medical Impressions of Soviet Russia.

Committee on Scottish Health Services

The Secretary of State for Scotland has appointed a committee "to review the existing health services of Scotland in the light of modern conditions and knowledge, and to make recommendations on any changes in policy and organisation that may be considered necessary for the promotion of efficiency and economy." The chairman is Sir John Dove-Wilson, K.C., formerly president of the Supreme Court of Natal; and the members include: Mr. George Bonar, of Dundee; Dr. James L. Brownlie, chief medical officer of the Department of Health; Mr. Ian Carmichael, a well-known local administrator in Lanarkshire; Prof. E. P. Cathcart, M.D., F.R.S., professor of physiology, University of Glasgow; Dr. Robert W. Craig, of the Scottish Section of the British Medical Association; Provost David Fisher, of Hawick; Prof. Alexander Gray, professor of economics in the University of Aberdeen; Sir Andrew Grierson, town clerk of Edinburgh; Dr. John Jardine, of the Scottish Education Department; Dr. A. S. M. Macgregor, chief medical officer of Glasgow; Lady (Leslie) Mackenzie; Mr. W. M. Marshall, clerk to the Scottish Association of Insurance Committees; Mr. Alexander Miles, F.R.C.S.; Bailie Violet Roberton, of Glasgow; Mr. J. M. Vallance, of the Department of Health for Scotland; and Mrs. A. M. Chalmers Watson, M.D. The secretary of the committee is Mr. Niven F. McNicoll, of the Department of Health for Scotland, 121a, Princes-street, Edinburgh, to whom all communications should be addressed.

University of Bristol

The medical school of the University is celebrating its centenary this week-end, and all present and former members have been invited to take part in the celebrations which are taking the form of a reception at the Bristol Royal Infirmary, a dinner at the University Union, and the conferment of ordinary and honorary degrees in the great hall. This afternoon (Saturday, July 1st) the celebrations close with a garden party at the house of the sheriff of Bristol. These functions have been announced in our columns already.

St. George's Hospital

An evening conversazione was held on Tuesday last at St. George's Hospital to mark the occasion of the bicentenary, when a large company of old students and their relatives, as well as a number of representative guests, assembled in the institution. The proceedings were admirably organised, the board-room and the various theatres being prepared for entertainment, both of a scientific character and of the opposite. Sir William Bragg lectured on the Crystals of the Living Body; Mr. E. G. Boulenger gave an interesting discourse on what went on behind the scenes at the Zoo; and Mr. Rex Horsfield demonstrated the photo-electric cell, "the electric eye." Cabaret performances were arranged by Dr. H. E. Mansell with the generous coöperation of well-known broadcasting artistes.

London Hospital Medical College

Speaking at the annual prize-giving on June 27th, Prof. William Wright, the dean, referred to the formation within the hospital during the past year of special departments for diseases of the heart and for brain surgery. Technical methods of examination and treatment had become so elaborate that it had been judged necessary to create these departments in order to fulfil one of the primary purposes of a large medical school—the extension of knowledge. Fortunately the hospital was so large that there would remain ample clinical facilities for the other great purpose—the education of students in general routine methods of diagnosis and treatment. The changes would result in additions to the honorary staff, and Mr. Charles Donald had been elected an assistant surgeon. In the aural department Mr. Donald Wheeler had been elected assistant surgeon in succession to Mr. Geoffrey Carte, and as lecturer in chemistry in the medical college Mr. F. W. Bury had succeeded Mr. Hugh Candy. During the year various structural alterations had been made in the college, providing in particular a new histological laboratory—an improvement rendered possible by a legacy from Dr. Ewan Frazer. The entry of students had been greater than any since the end of the war, and the list of examination successes had been notable. In sport the students had acquitted themselves creditably in several fields, without, however, attaining first places except in cross-country running and sailing. The Armitage cup for rifle shooting was lost by only a single point, and both the Rugby XV. and the Association XI. reached the semi-final round. Mr. B. H. Page had set up a record for the mile at the University of London sports, and equalled a 40-years' record for the same distance at the inter-hospital sports. Prof. Wright concluded his speech by appealing for further support for the students' hostel. The appeal committee had succeeded in obtaining a promise of a site from the house committee and in raising £15,000—about half the sum required. The offer of a loan of £10,000 on favourable terms had been received, but the problem of raising at least a further £5000 remained.

The Dean of St. Paul's, in presenting the prizes, said that he considered the clergy belonged to the healing profession, and he hoped that in the future the aspect of physician of the soul would be made more of, and that it would be placed on a more scientific basis than at present. Many were the occasions when medical and clerical consultations could be valuable, particularly as many human troubles were directly connected with questions of sex.—Sir William Goschen, chairman of the house committee, moved a vote of thanks to Dean Inge, and Dr. Cecil Wall, in seconding, gave an interesting sketch of the history of the power given to deans of St. Paul's to grant licences to practise medicine, surgery, and midwifery in London.

Welsh National School of Medicine

Dr. Ralph Picken has been appointed the Mansel Talbot professor of preventive medicine in succession to Prof. E. L. Collis, who is retiring.

Dr. Picken, who is 49 years of age, was born in the Isle of Arran and received his medical education at the University of Glasgow, where he graduated B.Sc. in 1905 and M.B. with honours in 1908. In 1911 he took the diploma of public health at Cambridge, and after holding various posts in the counties of Dumfries and Renfrew he became in 1913 assistant medical officer to the public health department of Glasgow. In 1921 he was appointed medical officer of health to the city and port of Cardiff, acting also as school medical officer and lecturer in public health to the Welsh National School of Medicine.

Dr. R. St. A. Heathcote has been appointed independent lecturer in materia medica and pharmacology.

Fellowship of Medicine and Post-Graduate Medical Association

There will be a week-end course in general medicine and surgery at the General Hospital, Southend-on-Sea, on July 8th and 9th. On Friday, July 7th, there will be an antenatal demonstration at the Royal Free Hospital at 5 P.M. On Thursday, July 13th, from 4–6 P.M., Dr. Peter Kerley will give a demonstration of X ray films at the Medical Society of London. There will be an all-day course in proctology at St. Mark's Hospital from July 3rd to 8th. Forthcoming courses include a course in ophthalmology at the Royal Westminster Ophthalmic Hospital from July 10th to 29th; a course in dermatology at the Blackfriars Skin Hospital from July 10th to 22nd; a course in practical pathology at the Brompton Hospital from July 10th to 22nd; and a course in urology at the All Saints' Hospital from July 10th to 29th. Further particulars may be had from the secretary of the association at 1, Wimpole-street, London, W. 1.

Forthcoming Congresses

Meetings which have been arranged for the second half of this year include the following:—

July 4th–9th	International Congress for Child Welfare	Paris.
July 5th–8th	Oxford Ophthalmological Congress	Oxford.
July 5th–7th	Royal Medico-Psychological Association	Clacton-on-Sea and Colchester.
July 5th–7th	English-speaking Conference on Maternity and Child Welfare	London.
July 7th–9th	Industrial Welfare Society	Bristol.
July 8th	Medical Conference on Contraception	London.
July 10th–15th	International Society of Urology	London.
July 13th–15th	National Association for the Prevention of Tuberculosis	Cardiff.
July 19th–22nd	International Society of Orthopædic Surgery	London.
July 20th–22nd	International Pædiatric Conference	London.
July 25th–29th	British Medical Association	Dublin.
Aug. 13th–27th	Tomarkin Foundation Post-graduate Course	St. Moritz.
Aug. 20th–26th	International Congress for Experimental Cytology	Cambridge
Sept. 7th–9th	Association Professionnelle Internationale des Médecins	London.
Oct. 4th–8th	International Congress of Hydrology, Climatology, and Medical Geology	Toulouse.
Oct. 12th–14th	French Congress of Radiology	Paris.
Oct. 13th–14th	French Society of Plastic Surgery	Paris.
Oct. 23rd–25th	French Therapeutic Congress	Paris.
Oct. 25th–30th	International Congress on Cancer	Madrid.

Association of Surgeons

The Association of Surgeons of Great Britain an Ireland offer a scholarship of £350, to be held for on year. The holder will be expected to pursue a definit line of research or to study surgery in specified clinic at home or abroad. Application must be made befor Sept. 30th to the hon. secretary, Mr. Julian Taylor 65, Portland-place, London, W. 1. Further particular will be found in our advertisement columns.

Medical Conference on Contraception

A conference will be held in the Great Hall, B.M.A House, Tavistock-square, London, W.C., on Saturday July 8th. In the morning Mr. C. W. Bellerby will speak on Recent Researches on Temporary Hormonic Sterilisation, Prof. Julian Huxley presiding; and Mrs. L. M Jeffreys, M.D., Mrs. F. Ivens-Knowles, M.S., and Dr A. G. M. Severn will speak on Public Health Authoritie and Information on Contraception, Dr. Helena Wrigh presiding. Lord Horder will take the chair at the afternoon sessions when Mr. John Baker, Ph.D., and Mr H. M. Carleton, Ph.D., will speak on Chemical Spermicide and their Effects, and Dr. E. F. Griffith on General Practice and Information on Contraception. Furthe information may be had from the secretary of the National Birth Control Association, 26, Eccleston-street, London, S.W. 1.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, July 4th.—5 P.M., Annual General Meeting of the Society.

THURSDAY.—5.30 P.M., UROLOGY. Dr. H. G. Bugbee (New York): Conservation in Urology.

BIOCHEMICAL SOCIETY.

SATURDAY, July 8th.—2.30 P.M. (at the Rothamsted Experimental Station, Harpenden). *Communications*: 1. D. C. Harrison: The Action of Vitamin C on Tissues in vitro. 2. E. B. Anderson and L. J. Meanwell: Studies in the Pasteurisation of Milk. 3. E. Smith, D. Hughes, G. F. Marrian, and G. A. D. Haslewood: A New Trial from the Neutral Fraction of Pregnant Mare's Urine Extract. 4. L. R. Bishop: The Proteins of Barley Grain. 5. A. G. Norman: Observations on [illegible] Virus Effects. 8. F. G [illegible] Nitrogen and Potassiur [illegible] Barley.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, July 3rd, to SUNDAY, July 9th.—ROYAL FREE HOSPITAL, Gray's Inn-road. Frid., 5 P.M., Antenatal Treatment.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street. Course in Cardiology occupying the whole of each day.—CHILDREN'S CLINIC, Cosway-street, Marylebone-road. Post-graduate Course in Children's Diseases. Afternoons and some mornings.—PRINCE OF WALES'S HOSPITAL, Tottenham. General Post-graduate Course in Medicine, Surgery, and the Specialties occupying the whole of each day.—ST. MARK'S HOSPITAL, City-road. Course in Proctology, all day.—GENERAL HOSPITAL, Southend-on-Sea. Sat. and Sun. Week-end Course in General Medicine and Surgery, all day.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.

MONDAY, July 3rd.—10 A.M., Medical Wards, Skin Clinic. 11 A.M., Surgical Wards. 2 P.M., Operations, Medical, Surgical, Eye, and *Gynæcological* Clinics.

TUESDAY.—10 A.M., Medical Wards. 11 A.M., Surgical Demonstration. 2 P.M., Operations, Medical, Surgical, and Throat, Nose, and Ear Clinics. 4.15 P.M., Mr. Green-Armytage: *Common Diseases during Pregnancy.*

WEDNESDAY.—10.30 [illegible] ren's Wards, Children's Clinic. [illegible] Operations, Medical, Surgical,

THURSDAY.—10 A.M., Neurological Clinic. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Clinics.

FRIDAY.—10 A.M., Skin Clinic. 12 noon, lecture on Treatment. 2 P.M., Operations, Medical, Surgical, and Throat, Nose, and Ear Clinics.

SATURDAY.—10 A.M., Medical Wards, Children's and Surgical Clinics. Surgical Wards.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, July 5th.—4 P.M., Dr. Stanley Wyard: Some Principles of the Diagnosis of Gastric Cases. (Lantern slides.)

NOTES, COMMENTS, AND ABSTRACTS

APPLIED PHYSICS

THE National Physical Laboratory chooses every year, on the occasion of the formal visit of the general board, to turn itself into an exhibition for guests, possibly in order to give up only one instead of two precious working days. On June 27th, the date of this year's visitation, guests were received by Sir Gowland Hopkins in the high voltage laboratory—a spot which has an invigorating sound to the meek until they recall associations with the electric chair. From this alarming parlour visitors were allowed to wander to the various buildings; and here they saw wind tunnels for testing aeroplane models, ship tanks for the study of ship propulsion, instruments for measuring small differences in shades of colour, synthetic lightning, and in the radio department an electron stop-watch which might have been invented by Jules Verne.

Experiments having a special interest for medical visitors include those designed to improve the efficiency of refrigeration plants. As refrigeration in relation to foodstuffs is an industry involving millions of pounds a year, any economies which can be made in it are of great importance. Most refrigeration plants circulate cold brine through banks of pipes in a large chamber, thus cooling the air, and the efficiency of the plant depends on the amount of this heat transfer. Recently, better results have been obtained at the laboratory by circulating the air over such banks of pipes in a wind tunnel. The transfer of heat from the air to the cooled pipes is much increased by breaking up the current of air by means of a series of spaced wooden bars. The increased turbulence necessitates the use of more power to drive the fan circulating the air, and experiments are being made to decide how far this increased power consumption offsets the gain in heat transfer. Another experiment of considerable practical importance is that demonstrating the recovery of the eye after exposure to glare. Motorists and cyclists both suffer from the dazzle which blinds them after meeting a car with powerful headlights; an aeroplane pilot searching for an airway beacon may suffer in the same way after glancing at his illuminated instrument board. An elaborate apparatus, depending on the observation of recurring flashes of light, has been arranged to measure the rate of recovery; other experiments have been designed to demonstrate the effect of pupil size on luminous efficiency: this is not uniform over the whole of the pupil as was formerly assumed, but efficiency is actually greatest at the centre of the pupil, diminishing towards the periphery. The whole process of testing clinical thermometers was shown, great accuracy in checking and counter checking being observed. The glass is examined radiologically to ensure that lead glass is used; repeated tests have shown that this is a satisfactory glass for thermometers, and it is therefore given preference over other kinds.

In the X ray department experimental realisation of the Rontgen (r), the unit of X ray quantity, has been achieved. A few years ago American, German, and English standards differed by as much as 40 per cent., but with modern methods of standardisation, which depend on the ionisation produced in air by the rays to be examined, differences of standard are within 0·5 per cent. The older thimble-chamber apparatus was used for standardisation in the past, and a thimble apparatus calibrated against the new standard is probably accurate within 5 per cent. The Pastille dose was probably accurate only within limits of about 20 per cent., so that the new method of standardisation offers a considerable advance.

An enthralling exhibit in the aerodynamics department demonstrated the value of model tests to show the effect of "buffeting" on aeroplane tails—a phenomenon which has a distinct influence on the health of the pilot. When the main wing of the plane is inclined at a large angle of incidence it sheds behind it a succession of eddies at fairly regular intervals, and these may strike the tail plane if it occupies an unfavourable position in relation to the wings. Vibration of the tail may result, and if very severe the tail plane might actually be broken, so that a crash would be inevitable. It is thought that the Meopham accident in 1930 was due to buffeting. With model aircraft, the buffeting of the tail can be shown for different altitudes, and the flow of air over the wings is demonstrated by the behaviour of short wool streamers. By the use of such models it will be possible to predict the degree of buffeting to be expected in any type of machine, and to demonstrate the value of devices for overcoming it. It is unfortunate that the low-wing monoplane, which is enjoying an increasing popularity among flying enthusiasts, is thought to be particularly liable to buffeting.

The guests showed keen appreciation of the privilege of inspecting a laboratory whose routine work is hardly less stimulating than its manifold research activities.

STRANGEWAYS RESEARCH LABORATORY

THIS laboratory has become a recognised training centre at which workers from all over the world may acquire the technique of tissue culture. The annual report for 1932 shows advance in knowledge in every field approached, and the brief account of results here set out gives little indication of the labour involved in their production. The new extension of the laboratory buildings, made possible by a bequest of the late Sir Otto Beit, has been in use since January, and has enabled the laboratory to collaborate with the university department of physiology; for this purpose a physiological section has been established under the supervision of Mr. E. N. Willmer. The work of the new section has included a study of the growth of embryonic fowl heart fibroblasts in various media, with the object of making a more exact analysis of the processes by which growth takes place, and of estimating the growth-promoting capacity of different media. By photographing a portion of the field of growth of a culture every six minutes it is possible to obtain direct measurements of the movements of cells in the field and to estimate the number of cell divisions. Mr. Willmer has found that cells grown in plasma show greater activity in the presence of embryo extract than in the presence of Tyrode's solution; the difference in division rate of cells under the two conditions makes it probable that this method can be used to investigate the growth-promoting properties of various media. Miss C. F. Fischmann has begun the investigations into the effect of vitamins upon tissue growth and differentiation which were foreshadowed in last year's report. Dr. F. G. Spear, in collaboration with Mr. L. G. Grimmett at the Westminster Hospital, has completed, as far as possible, his work on biological response as a function of the intensity of gamma radiation. He has taken reduction of cell division as the criterion of effect, and has found that there is a critical intensity of gamma radiation at which the biological response can be brought about with minimum dose; beyond this intensity the dose necessary to achieve a given effect remains nearly constant over a wide range of intensities, and below the critical intensity the dose has to be much increased in order to produce the same biological response. Analogous results have been obtained by Miss S. F. Cox, who finds, using X and gamma radiation, that a given dose of irradiation, delivered at one intensity, causes a fall in mitosis in vitro followed by a compensatory rise; but that the same dose given with a greater intensity causes a fall in mitosis without any subsequent compensatory increase. Other work of the laboratory includes cinematography of avian blastoderms in vitro after experimental treatment (in collaboration with St. Bartholomew's Hospital), the elaboration of a technique for the cultivation in vitro of rabbit blastoderms, investigation of chondrogenesis in cultures of endosteum, and of the artificial calcification of the hypertrophic cartilage in the embryonic long bones of the fowl, a study of erythropoiesis in vitro, and various studies on the rat retina. Miss Honor Fell, D.Sc., director of the laboratory, made a visit to America during the year to give a demonstration to the sixth International Congress of Genetics at Cornell University.

A PLACE OF REST AND RECUPERATION

It is nearly five years since we called attention to the amenities of Backsettown, Henfield, a fourteenth century house in Sussex adapted to provide a luxurious rest house for those in need of solitude, quiet, and complete freedom from responsibility for a period. The luxury consists in comfortable beds, constant hot water, well-chosen and cooked food, admirable service, and, not least, in privacy: for though there are public rooms, guests may have their meals in bed or in the garden without extra charge and without having to invent good reasons for their whim. The matron is a fully trained nurse and two doctors are available at call; but the house is designed for people who do not require actual sick nursing, though convalescents are welcome. A vitamin-rich diet is maintained not only by the home-grown vegetables, but by the recent addition of dairy produce from cows kept under hygienic conditions. Particulars of charges and accommodation may be obtained from the hon. secretary, Miss Evelyn Fellows, 15, Eaton-gardens, Hove. Applications for admission should, if possible, include a letter from the patient's own doctor.

Appointments

COMERFORD, J., M.B., B.Ch. N.U.I., has been appointed Medical Officer, Borstal Institute, Clonmel.

Certifying Surgeons under the Factory and Workshop Acts: TIGHE, CHARLES, M.B., Ch.B. Aberd. (Eynsham, Oxford); WILSON, A. G., M.B. Lond. (Penistone, York).

HARLEY, HAROLD C., B.M. Oxf., has been appointed Casualty Medical Officer; R. S. BRUCE PEARSON, B.M. Oxf., and J. N. O'REILLY, B.M. Oxf., Out-patient Medical Registrars; J. F. L. KING, M.B. Lond., R. S. KIRK, M.B. Edin., and Miss ISABEL VALLANCE, M.R.C.S., Out-patient Anæsthetists; R. W. B. ELLIS, M.D. Camb., M.R.C.P. Lond., In-patient Medical Registrar; JAMES CROOKS, F.R.C.S. Eng., and J. K. WILLSON-PEPPER, M.B. Camb., Surgical Registrars, at the Hospital for Sick Children, Great Ormond-street, London, W.C.

PINEY, A., M.D., Ch.B. Birm., Assistant Physician, St. Mary's Hospital for Women and Children, Plaistow.

Vacancies

For further information refer to the advertisement columns

Accrington Victoria Hospital.—H.S. £150.

Association of Surgeons of Gt. Britain and Ireland, 65, Portland-place, W.—Surgica' [illegible] —£350

Birmingham, Selly Oak [illegible] t rate of £200.

Blackburn Royal Infirm [illegible] 150.

Bolingbroke Hospital, [illegible] *S.W.*—H.P. At rate of £120.

Bristol Eye Hospital.—Asst. Res. H.S. At rate of £100.

Bristol General Hospital.—Two H.P.'s, Two H.S.'s, &c. All at rate of £80.

Brook (Fever) Hospital, Shooter's-hill, S.E.—Res. Med. Supt. £1000.

Burnley, Victoria Hospital.—H.S. At rate of £150.

Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.

Cardiff, Royal Hamadryad Seamen's Hospital.—Res. M.O. £650.

Central Histological Laboratory, Archway Hospital, Archway-road, N.—Histologist, Grade II. £750.

Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. At rate of £75.

Chesterfield and North Derbyshire Royal Hospital.—Cas. O. and H.S. At rate of £200 and £150 respectively.

Coventry and Warwickshire Hospital.—Res. Cas. O. £125.

Greenock Royal Infirmary, Renfrewshire.—Two H.S.'s. Each at rate of £100.

Guildford, Royal Surrey County Hospital.—Hon. Asst. Physician. Also H.S. £150.

Halifax, St. Luke's Hospital.—Consulting Surgeon. Four gns. per session. Also Jun. Res. M.O. £250.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. £50.

Hospital of St. John and St. Elizabeth, 60, Grove-End-road, N.W.—Res. H.P. At rate of £100.

Huddersfield Royal Infirmary.—H.S. At rate of £150.

Hull Royal Infirmary.—Cas. O. At rate of £150.

Infants' Hospital, Vincent-square, Westminster.—Med. Re £120.

Kingston-upon-Hull, Anlaby-road Institution.—Asst. M.O. £35

Leamington Spa, Warneford General Hospital.—Res. Cas. H. and House Resident to Spec. Depts. £150.

L.C.C.—Consultant and Specialist Services.

Leeds University.—Medical Tutor and Registrar. £500.

Liverpool Heart Hospital.—Asst. Physician. £200.

Liverpool, Waterloo and District General Hospital.—H.S. £10

London Homœopathic Hospital, Great Ormond-street, W.C.—Re M.O. At rate of £100.

London Lock Hospital and Home, Harrow-road, W.—Hon. Sur

Maidstone Kent County Mental Hospital.—Asst. M.O. £509.

Manchester, Ancoats Hospital.—H.P. At rate of £100.

Manchester, St. Mary's Hospitals.—Two H.S.'s, Whitwortl street West Hospital. Also Two H.S.'s, Whitworth-par Hospital. Each at rate of £50.

Mount Vernon Hospital, Northwood.—H.S. At rate of £150.

National Hospital for Diseases of the Nervous System, Queen square, W.C.—H.P. £150.

Newcastle General Hospital.—H.S. and H.P. Each at rate o £150.

Nottingham City.—Asst. M.O.H. £500.

Nottingham General Hospital—H.S. At rate of £150.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. Sur Also Hon. Surg. to Ear, Nose and Throat Dept.

Paddington Green Children's Hospital, W.—H.P. and H. Each at rate of £150.

Preston and County of Lancaster Royal Infirmary.—H.S. £15

Putney Hospital, The Lower Common, S.W.—Res. M.O. At ra of £150.

Queen's Hospital for Children, Hackney-road, E.—Res. M.C At rate of £200.

Royal Eye Hospital, St. George's-circus, S.E.—Hon. Physician.

Royal Northern Hospital, Holloway, N.—H.S., H.P., an Obstetric H.S. Each at rate of £70.

St. Mary Abbots Hospital, Marloes-road, Kensington, W.—Pathologist. £1100. Also Asst. Pathologist. £650.

St. Mary's Hospital for Women and Children, Plaistow, E.—Hon Gynæcologist.

Salisbury General Infirmary.—H.P. At rate of £150.

Sheffield, Children's Hospital.—H.S. At rate of £100.

Sheffield Royal Infirmary.—H.S. Asst. Cas. O. and Asst. Aur and Ophth. H.S. Each at rate of £80.

Shrewsbury, Royal Salop Infirmary.—Res. H.P. At rate o £160.

Southampton, Royal South Hants and Southampton Hospital.—H.P., H.S. to Ear, Nose, and Throat Dept., and Re Anæsthetist. Each at rate of £150.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—H.F and H.S. Each at rate of £100.

West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—Hon. Asst. Ophth. Surgeon.

West London Hospital, Hammersmith, W.—Hon. Med. Reg. t Children's Dept.

Wigan Royal Infirmary.—H.S. At rate of £150.

Winchester, Royal Hampshire County Hospital.—H.S. At rat of £125.

Windsor, King Edward VII. Hospital.—Res. M.O. £200.

Wolverhampton and Midland Counties Eye Infirmary.—H.S £150.

Wolverhampton Royal Hospital.—H.S. At rate of £100.

York Dispensary.—Res. M.O. £175.

The Chief Inspector of Factories announces vacancies fo Certifying Factory Surgeons at Troon, Ayr, and at Kirk cowan, Wigtown.

Births, Marriages, and Deaths

BIRTHS

CROWLEY.—On June 24th, at Dromquinna, Kenmare, the wife o Dr. J. F. Crowley, of a daughter.

EVERETT.—On June 20th, the wife of Alan D. Everett, F.R.C.S. of Montague House, Leatherhead, of a son.

HALLIWELL.—On June 20th, at Welbeck-street, the wife o A. C. Halliwell, F.R.C.S., of a daughter.

ORMEROD.—On June 24th, at St. Ronald, Broomhill-road Woodford Green, the wife of Thomas Laurence Ormerod M.B., of a son.

DEATHS

GOW.—On June 19th, at Porlock, William John Gow, M.D., F.R.C.P., aged 70 years.

JEANS.—On June 21st, suddenly, at Harrogate, Frank A. G. Jeans, M.A. Camb., F.R.C.S., of Rodney-street, Liverpool, aged 55.

ROBINSON.—On June 24th, at Greenhill-gate, Weymouth, John Elliott Robinson, M.B., D.P.H., County Medical Officer of Health of Dorset, aged 59.

SMITH.—On June 26th, at Salisbury, Sydney, Calvin Smith, M.R.C.S., L.R.C.P., D.P.H., &c., late of Atherstone, Muswell Hill, and Milford-on-Sea, aged 68.

WELCH.—On June 19th, at Knight's Hill Lodge, West Norwood, Samuel Welch, M.D., Citizen and Cutler, aged 82 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices Births, Marriages, and Deaths.

ADDRESSES AND ORIGINAL ARTICLES

subject

THE EFFICIENT TREATMENT OF PERNICIOUS ANÆMIA*

By S. C. Dyke, D.M. Oxf.
PATHOLOGIST TO THE ROYAL HOSPITAL, WOLVERHAMPTON
AND
Eileen Harvey, M.R.C.S. Eng.
ASSISTANT PATHOLOGIST AND MEDICAL REGISTRAR TO THE HOSPITAL

Pernicious anæmia has now taken its place along with diabetes and myxœdema among the diseases due to deficiency of some principle normally present in the body, and the treatment of which depends upon substitution of the lacking substance. By the use of the anti-anæmic principle contained in liver it can be treated with a certainty of success such as holds in almost no other condition. There is now no reason why any sufferer from uncomplicated pernicious anæmia should not be restored to and maintained in a state of perfect health.

In order to attain this there are two essentials: (1) Correct diagnosis. (2) Appropriate dosage of the anti-anæmic principle.

Correct Diagnosis

Pernicious anæmia can readily be confused with other types of anæmia which will not respond to treatment with the anti-anæmic liver principle, though for some of them—e.g., the microcytic anæmias responsive to massive iron dosage—another satisfactory treatment now exists. Iron therapy is useless in the cure of pernicious anæmia, and, conversely, treatment by the active liver principle is of little use in the microcytic anæmias. Accurate diagnosis in any case of anæmia is then of prime importance. It is, however, impossible apart from the use of laboratory methods; even with the assistance of the laboratory it may not be easy. The diagnosis depends upon the combination of the results of a number of investigations; some of these results may be combined in different permutations, and all are seldom necessary. A questionnaire was recently circulated to the members of the Association of Clinical Pathologists on the measures essential for the establishment of the diagnosis of pernicious anæmia, and there was general agreement that a firm diagnosis could not be made without the use of all the following procedures:—

Estimation of the hæmoglobin percentage.
Enumeration of the red cells.
Examination of a stained film of blood.
Fractional test-meal.
Van den Bergh reaction of the serum.
Examination by some method of the variability in the size of the red cells.

It will be noted that it is impossible to make a firm diagnosis by the examination of the blood picture alone; the examination of the gastric contents for achlorhydria is also an essential step.

Dosage of Anti-anæmic Principle

It was laid down by G. R. Minot in the early days of the liver treatment that the effective dose of the anti-anæmic principle was roughly, and within wide limits, that contained in half a pound of liver daily. There are, however, few willing to go through life condemned to the ingestion of half a pound of liver a day, and to-day commercial preparations of the anti-anæmic principle have almost entirely replaced the use of whole liver. Originally these commercial preparations were intended entirely for oral use and were made up either from liver or hog's stomach; lately highly potent preparations of the anti-anæmic principle for parenteral injection have been made available.

These commercial preparations vary widely in price and it therefore becomes a matter of the greatest importance to determine in the first instance their effective dose, and in the second its cost.

In the liver preparations for oral use the effective dose may be expected to be that extracted from half a pound of liver; it does not necessarily follow that this is really an effective dose, as methods of extraction vary widely in the degree to which they permit of the recovery of the anti-anæmic principle. In the stomach preparations and of the liver preparations for parenteral injection even this guidance is absent; their effective dosage can only be determined by experiment.

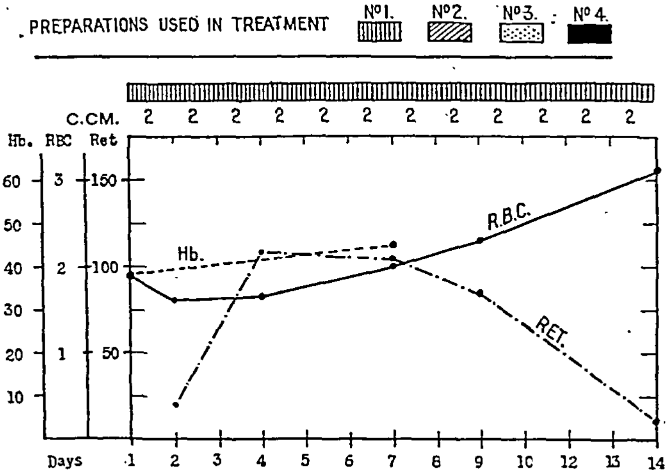

FIG. 1.—Response to treatment with No. 1 (doses of 2 c.cm. daily). Hb.=hæmoglobin per cent. R.B.C.=red blood cells in millions per c.mm. Ret.=reticulocytes per 1000 red cells.

ASSAY OF PREPARATIONS FOR PARENTERAL INJECTION

An investigation was recently undertaken in the pathological department of the Royal Hospital, Wolverhampton, into the efficiency of certain preparations for parenteral injection. Owing to scarcity of subjects only four preparations were tested. Preparation No. 1 is of German origin, preparations No. 2 and No. 4 English, and preparation No. 3 American.

It is a recognised fact that in the successful treatment of pernicious anæmia actual increase of the circulating red cells is always preceded by a "reticulocyte crisis." Experience with No. 1 showed that, using it in effective dosage, the commencement of such a crisis was demonstrable by the second day of treatment and was at its maximum by the fifth. For the purposes of the investigation it was assumed that no preparation could be regarded as efficient which failed to show a definite increase of reticulocytes by the third day.

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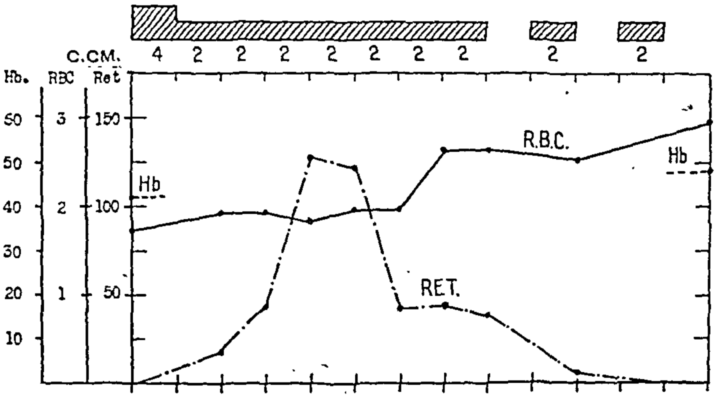
* Read before the Association of Clinical Pathologists at Manchester, June 24th, 1933.

Fig. 1 shows the reticulocyte response to No. 1. This preparation was early recognised as highly potent and was taken as standard. It was found that a satisfactory start to treatment was obtained by an initial dose of 4 c.cm., followed by daily doses of 2 c.cm. for a week.



FIGS. 2 and 3.—Response to No. 2. Preliminary dose of 4 c.cm. daily followed by doses of 2 c.cm.

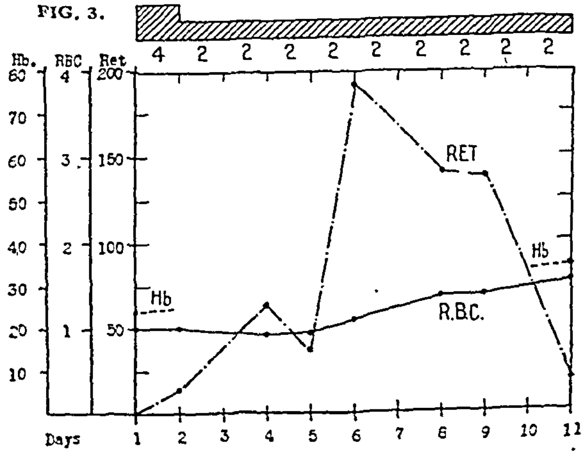
Figs. 2 and 3 show the response to No. 2 in the same dosage; it is even more effective than the German preparation. Subsequent experience of this preparation shows it to be highly efficient.

Fig. 4 shows the response to No. 2A. This was an unconcentrated form of No. 2. It gave a reticulocyte response in the same dosage as the standard No. 1, but this response was not regarded as being satisfactory. The exhibition of No. 1 on the conclusion of the response gave a further reticulocyte shower, showing that the response had not been maximal and that the unconcentrated preparation was not fully potent. As a result of this observation and of that recorded in *Fig. 5* the makers were communicated with and produced the concentrated form No. 2.

Fig. 5 shows the response to No. 4 and No. 2A. No. 4 in the dosage recommended by the makers proved inert; No. 2A gave a slight response, but that in the dosage used it was not fully potent was shown by the subsequent response to No. 1.

Fig. 6 shows the response, or rather failure of it, to No. 3, an American preparation. This proved almost entirely inert; subsequent treatment with No. 1 gave a satisfactory response.

FIG. 3.



THE "FULL" DOSE

Of the preparations for parenteral injection 2 c.cm. of No. 1 or No. 2 may be regarded as the "full dose," using this term as described above in the sense of the daily dose required to give a maximal reticulocyte response. The "full" dose of oral preparations of the anti-anæmic liver principle has been taken as the equivalent of half a pound of liver. For the hog stomach preparations the "full" dose has been estimated from data supplied as the result of the questionnaire to members of the Association of Clinical Pathologists, and from personal experience.

Cost of Treatment

In attempting to gauge the cost of treatment with the various preparations, initial treatment has been considered to demand two "full" doses on the first day, and thereafter one "full" dose daily of all preparations, whether for oral or parenteral administration. For maintenance experience has shown that most patients, once their blood picture has been brought to normal, will carry on satisfactorily with one "full" dose weekly, of the preparations for *parenteral administration*; some require, for a time at any rate, only one such dose every two or even three weeks. Of the oral preparations experience has shown that most patients require one "full" dose at least three times a week.

On the above assumption an attempt has been made to estimate the average relative cost of one week's initial treatment and of one week's maintenance on various preparations. The following figures were arrived at:—

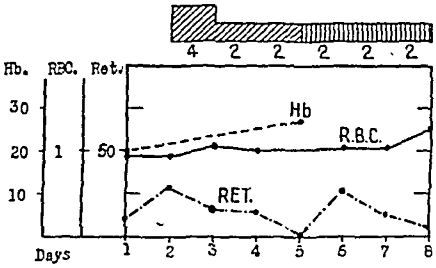


FIG. 4.—Response No. 2A, an unconcentrated form of No. 2, in doses of 4 and 2 c.cm. Subsequent reticulocyte response to No. 1.

TABLE I

	Week's initial treatment. s.	d.	Week's maintenance treatment. s.	d.
Preparations for parenteral injection:—				
A. No. 1 above	8	8	1	1
B. No. 2 "	8	0	1	0
C.	48	0	8	0
Oral liver preparations:—				
A. Liquid	13	6	5	1
B. "	5	8	2	1¼
C. Dry	24	0	9	0
D. Liquid	14	6	5	6
E. "	22	6	8	6
Oral stomach preparations:—				
A.	6	4½	2	1½
B.	42	0	15	9

It is evident from the above that both in maintenance and treatment efficient preparations for parenteral injection are much cheaper than those for oral administration; it is further evident that the cost per unit of bulk bears very little relationship to cost per unit of efficiency.

The Outlook for the Patient

Five years ago pernicious anæmia was an inevitably fatal disorder. It can now be treated with a certainty and accuracy such as prevails in the case of no other disease. That it is not so treated even now, Table II., compiled from the replies to a questionnaire sent out to all patients treated, for pernicious anæmia at hospital in the last five years, bears witness.

It shows the fate of 52 patients treated at the Royal Hospital, Wolverhampton, within the last five years.

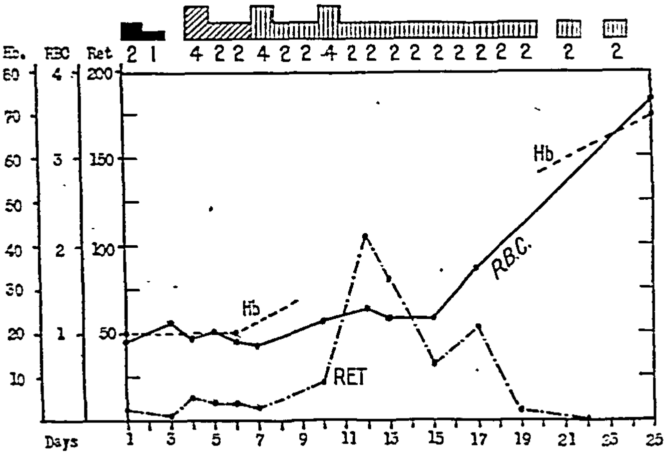


FIG. 5.—Response to Nos. 4, 2A, and 1.

Of these 19 attended regularly at the pathological department for examination of their blood picture, and reported on their state to their own doctors by whom the treatment was carried out. Of these 19

TABLE II

Total cases, 52.

	Present state:			
	Well.	In poor health.	Dead.	Lost.
Cases attending laboratory regularly (every week to every three months)—19	19	0	0	0
Cases not attending—33	9	7	15	2

all are now alive and well and able to carry on their business. One of them on admission was bedridden on account of paralysis of the legs due to degeneration of the cord, and one, a seamstress, had lost the use of her hands to such an extent that she was unable even to hold a needle; the first patient now does her housework unaided, and the second is again working as a seamstress.

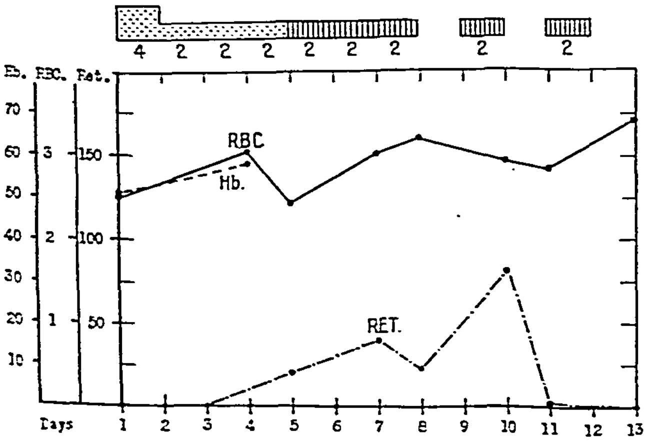


FIG. 6.—Failure of response with No. 3. Subsequent improvement with No. 1.

Of the 33 patients who failed to turn up regularly for examination of their blood and a report for their doctor, only nine reported themselves as being in good health and able to carry on with their affairs; these, except one hero who reported himself as still devouring half a pound of liver daily, were all taking an efficient dose of some commercial preparation under the direction of their own doctors; of the remainder, seven were in such poor health that they were unable to attend to their affairs; and 15 were dead. Two were not traced.

Of the dead it should be pointed out that three died of carcinoma of the stomach, the presence of which was confirmed in each case at post-mortem. This high incidence of carcinoma of the stomach is, to the best of our knowledge, a hitherto unreported phenomenon. It may have something to do with the current superstition that carcinoma of the stomach may give the blood picture of pernicious anæmia.

Leaving aside the deaths from carcinoma, the remainder are directly attributable to pernicious anæmia. There is no reasonable doubt that had these patients been properly treated all would now be alive and well; further, those who reported themselves as being in ill-health and unable to follow their affairs might be about their own and the world's business.

Need for Anti-anæmic Service

The above Table serves to show the necessity for a close supervision of all cases of pernicious anæmia, even after the blood picture has been restored to normal. Relapse is so insidious that its progress is not noticed by the patient until matters have progressed far, perhaps too far for further successful treatment. Further, in the relapsed case, even after many weeks of treatment, though it may be possible to restore the blood picture to normal, the damage to the central nervous system may be irremediable.

It is essential that every patient suffering from pernicious anæmia should attend the laboratory at intervals of from one to three months, according to his or her condition, for examination of the blood and adjustment, if necessary, of the dosage of the anti-anæmic principle. In no other way can maintenance in a satisfactory state of health without unnecessarily heavy dosage be guaranteed. If this routine is followed there is no reason why any ordinary patient with pernicious anæmia should not be maintained in a good state of health.

At the present time, through the National Health Insurance service, a certain amount of money is spent on the commercial preparations of the anti-anæmic principle. As shown in Table I. the effective dose of these preparations varies widely in price; it is probable that of the preparations prescribed a good many are administered to patients not suffering from pernicious anæmia at all, to whom they will be valueless. It is certain that of those prescribed to patients suffering from pernicious anæmia they are in many instances given in such dosage as to be ineffective.

It would appear desirable that some official guidance should be given to panel practitioners as to the efficiency and dosage of the anti-anæmic principle; it is absurd that the country should be paying 15s. for a dose of the principle that might be obtained in the shape of another preparation for 1s.

It further appears desirable that there should exist some machinery available to the general practitioners of the country to aid them first in identifying cases of pernicious anæmia, and afterwards keeping a watch upon the blood picture. This is only a further instance of the necessity for including laboratory service within the N.H.I. benefit, but it is a particularly striking one; there can be little doubt but that its absence is responsible for a good deal of wastage through unnecessary ill-health and avoidable death. The diagnosis and treatment of panel patients suffering from pernicious anæmia is at present in the main carried out in the voluntary hospitals throughout the country; and the voluntary hospitals would appear to constitute the most suitable and satisfactory centres for the working of such an anti-anæmia service in association with the N.H.I. system.

SUBACUTE COMBINED DEGENERATION AND PERNICIOUS ANÆMIA* subject

BY J. G. GREENFIELD, M.D. EDIN., F.R.C.P. LOND.
PATHOLOGIST TO THE NATIONAL HOSPITAL, QUEEN-SQUARE

AND

ELIZABETH O'FLYNN, M.R.C.P. LOND.
PATHOLOGIST TO QUEEN'S HOSPITAL FOR CHILDREN, HACKNEY-ROAD; LATE ASSISTANT PATHOLOGIST TO THE NATIONAL HOSPITAL

THIS paper is an attempt to answer certain questions on the relationship of subacute combined degeneration of the cord to pernicious anæmia. It is generally accepted at the present time that this relationship is an intimate one, and Ahrens [1] has even suggested that every case of pernicious anæmia would probably at some time show evidence of combined degeneration of the spinal cord. But it is equally evident that the anæmia does not of itself produce disease in the cord, as there is no necessary relationship between the degree of anæmia and the appearance or progress of nervous symptoms.

As a basis for this investigation we have analysed our records of pathological examinations made in cases admitted to the National Hospital, Queen-square, during the years 1929 to 1932. These years were chosen because by the beginning of 1929 routine investigation and treatment of cases of suspected combined degeneration of the cord on modern lines had been instituted. During these years we found 45 cases in which the final clinical diagnosis was that of subacute combined degeneration, and of which full laboratory investigations had been made.

ACHYLIA GASTRICA IN SUBACUTE COMBINED DEGENERATION

While the total acidity and the percentage of chlorides in the gastric juice may show significant changes in cases of this kind, the most important examination is that for free HCl. In our cases this was always *completely absent on the first examination* of the gastric juice. In one patient there was a very slight response of HCl to histamine injection on a second examination which was made after 16 months of regular liver treatment. This contrasted with a case of microcytic anæmia with asymmetrical nervous symptoms in which, although no free HCl was present in the samples of gastric juice drawn off during the first hour, a brisk secretion of acid followed injection of histamine.

While A. F. Hurst's demonstration of achylia gastrica in cases of pernicious anæmia and subacute combined degeneration has been repeatedly confirmed, there has also been evidence that this sign is not constant in either disease. It was therefore rather surprising to find it constantly present in our series of 45 cases. No doubt in a larger series cases with free HCl would form a definite percentage; but it appears to be true that achylia gastrica is at least as constant in subacute combined degeneration as in Addison's anæmia.

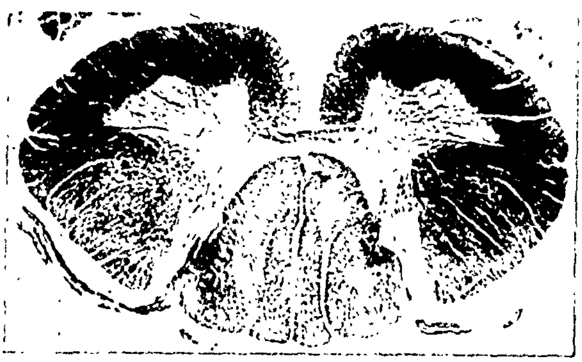


FIG. 1.—Section of the spinal cord from a patient who died of lobar pneumonia eight months after symptoms of subacute combined degeneration had appeared. The lesions are very slight and are confined to the central part of the dorsal columns.

THE BLOOD COUNT IN SUBACUTE COMBINED DEGENERATION

The state of the blood, when the patients came under treatment, varied from 1¼ million red cells per c.mm. with 58 per cent. Hb., to normal counts. Of our 45 cases, 6 had less than 2 million red cells, 8 between 2 and 3 million, 20 between 3 and 4 million, 5 between 4 and 4½ million, and 6 over 4½ million red cells. Thus in almost half our cases the red cell count lay between 3 and 4 million, and in a quarter was above this level. The colour-index was high in all, varying from 0·9 to 1·6, and in all except two cases it was on at least one occasion above 1. In these two cases the first red cell count was normal, 5¼ million in one and 4·85 million in the other. As is usual the colour-index tended to fall with an improvement in the blood picture and was highest with the greatest degree of anæmia, but the latter feature was not quite constant. Along with the fall in the colour-index the halometric readings returned to normal as the red cell count rose. The lack of co-relation between the blood count and the progress of nervous symptoms is emphasised by the fact that 14 per cent. of our cases came into hospital for treatment with a red cell count over 4½ millions, a colour-index slightly below 1, and a normal halo. On the other hand, in every case in which anæmia was present it conformed to the pernicious type.

SPINAL LESIONS UNDER TREATMENT WITH LIVER

A comparison of our post-mortem material during the last four years with that in the preceding ten years has revealed a fact on which little stress has been laid in the literature, although it was pointed out by Michell Clarke in 1904.[2] This is that in the early stages and in stages of remission of nervous symptoms the lesions are often confined to the dorsal columns of the cord. Michell Clarke observed this in cases dying of an intercurrent disease during the course of pernicious anæmia. None of the

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* *Read at the meeting of the Association of Clinical Pathologists in Manchester on June 24th, 1933.*

20 cases on which post-mortem examinations were made in this hospital in the ten years prior to 1909 showed this limitation of the lesions, but it was found in three of the nine cases which have been examined since this date (Fig. 1), and in another only the slightest evidence of degeneration of the lateral columns was present. It has not been unusual in our material to find that the lesion in the posterior columns antedates that in the antero-lateral columns by many months, as judged by the stage of myelin destruction and by the degree of gliosis. This agrees with the common clinical history that sensations of numbness and tingling with some ataxia and loss of vibratory sense, may antedate by a year or more symptoms of pyramidal tract degeneration. This sequence of lesions in the spinal cord was noticed in our older material as well as in that of recent date, and apparently bears no relation to modern methods of treatment. The only effect of treatment by liver may be to arrest the disease before it has attacked the lateral columns, so that if the patient dies of an intercurrent disease a pure posterior column degeneration will be found.

It is interesting that in one of our cases a bilateral Babinski response was present, although the lesions in the lateral columns were extremely slight, only one or two vacuoles being present in each section. Evidently therefore the Babinski response antedates definite visible changes in the pyramidal tract, a fact which may explain the occasional disappearance of this sign in the early stages of the disease. This localisation of the early lesions suggests that disease of the spinal cord may be present before any neurological signs can be elicited except diminution of vibratory sense and of joint sense; and it lends support to the view that the subjective sensory symptoms of pernicious anæmia are due to disease of the spinal cord. It seems, however, certain that in some of these cases the chief or perhaps the only anatomical basis of the symptoms is peripheral neuritis. This was suggested by Russell, Batten, and Collier[3] in their classic paper, and has more recently been confirmed by Mathieu.[4] But we do not yet know whether peripheral neuritis is an integral part of the syndrome of subacute combined degeneration, or whether its presence in certain cases is purely fortuitous. Nonne[5] held that it played no part in the syndrome, and the fact that very few workers have demonstrated lesions of the peripheral nerves in pernicious anæmia supports his contention. Woltmann[6] found clinical evidence of peripheral neuritis in 4·9 per cent. of 120 cases of pernicious anæmia with nervous symptoms, and suggested that the absence of pathological corroboration of these figures may be due to incomplete examination of post-mortem material. Unfortunately the relative ease and rapidity with which recovery takes place in the peripheral nervous system will make this problem even more insoluble in the future than it has been in the past.

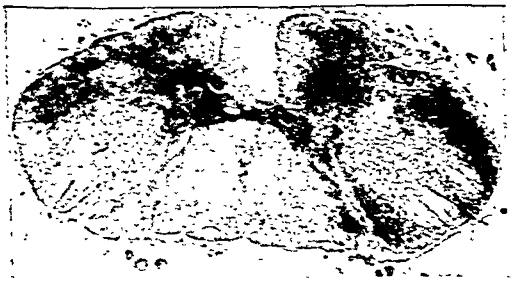

FIG. 2.—Section of the spinal cord from a patient who had had numbness and clumsiness of the hands and feet for 18 months, but was still able to play golf five weeks before death. There is an old-standing sclerosis in the centre of the posterior columns with recent acute lesions in the antero-lateral columns.

The treatment of subacute combined degeneration is certainly more difficult than that of pernicious anæmia. We do not yet know with certainty whether every proved remedy for the latter disease is capable of curing the nervous lesions. This doubt is suggested by the statement recently made by Prof. Davidson[7] that subacute combined degeneration appeared in patients who are relying on liver and stomach extracts and who take little or no liver.[8] Ungley[8] has adduced evidence that a diet of brain, which is insufficient to keep the blood count steady, may nevertheless produce marked improvement in the nervous symptoms. The available evidence goes to show that much larger doses of liver are needed to abolish nervous symptoms than to raise the blood count to normal, but the numerous cures that have taken place under this régime are an encouragement to further endeavours.

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THE TREATMENT OF ANÆMIAS *

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LOGICAL treatment of the anæmias is dependent upon a knowledge of the factors causing anæmia. A classification of anæmias upon an ætiological basis, though at present such a classification can only be temporary, is clearly of more value to the clinician than one dependent upon morphological features. Anæmias may be due to disordered production of red cells or hæmoglobin, the dyshæmopoietic anæmias, to excessive loss of blood, the post-hæmorrhagic anæmias, to excessive destruction of blood in vivo, the hæmolytic anæmias. The dyshæmopoietic anæmias are caused by (1) a deficiency of one or more of the factors essential for hæmopoiesis; (2) to the presence of factors disturbing hæmopoiesis; (3) to exhaustion following over-stimulation of hæmopoietic tissue. Deficiency of essential factors may also play a part in post-hæmorrhagic anæmias, especially those where blood loss has become chronic. The anæmias dependent upon a known deficiency of essential factors can obviously be most satisfactorily treated. In treating the deficiency anæmias it is necessary to determine first which essential factor is lacking, and secondly by which methods this deficiency should be made good.

Hæmopoietic Principles

The known hæmopoietic principles are :—

(1) A factor in liver effective in Addisonian

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* Paper read to the Association of Clinical Pathologists at Manchester, June 24th, 1933.

pernicious anæmia, which for the sake of briefness may be called the P.A. factor.

(2) A factor in liver effective in hypochromic anæmia.
(3) Iron.
(4) Copper.
(5) Vitamin C.
(6) Thyroxine.

Roughly speaking hyperchromic anæmias—i.e., anæmias with a high colour-index where stroma is more affected than hæmoglobin—are due to a deficiency of the P.A. factor. Hypochromic anæmias—i.e., anæmias with a low colour-index where hæmoglobin is more affected than stroma—are due to a deficiency of iron. Hæmoglobin content is a surer guide to treatment than red cell size. Addisonian pernicious anæmia gives a megalocytic Price-Jones curve and responds to liver or its substitutes. Erythroblastic anæmia associated with idiopathic steatorrhœa may likewise give a megalocytic curve with a high degree of variability, but is relieved by iron. In the former there is a high colour-index, in the latter an extremely low one. Therefore, for all practical purposes anæmia with a high colour-index, until the contrary is proved, may be considered due to lack of the P.A. factor.

THE P.A. FACTOR

The P.A. factor was originally thought to be formed by the action of a factor present in normal gastric juice, the intrinsic factor, upon an extrinsic factor present in the food digested. Certain American observers claim to have obtained satisfactory remissions by the injection of gastric juice alone. Their work awaits confirmation. If the original hypothesis proves correct a deficiency of the P.A. factor may theoretically be due to lack of extrinsic factor, owing to a deficient diet, to lack of intrinsic factor, owing to complete or partial failure of gastric secretion, or to failure of absorption of the completed product.

The question at once, therefore, arises as to how far it is possible to determine which type of defect is present. Clinical trial will alone answer this question. There is at present considerable divergence of opinion, based upon conflicting experimental results, as to whether there is ever a lack of extrinsic factor only. It was originally suggested that certain megalocytic hyperchromic anæmias that responded to marmite were due to lack of extrinsic factor which was supplied by marmite. This may prove to be true. On the other hand, if sufficiently large quantities of marmite are given to undoubted cases of Addisonian pernicious anæmia, they may induce a typical response which suggests that possibly marmite may contain the fully formed P.A. factor. At present it is impossible to be dogmatic on this point. It is, however, clear that marmite provides a definite hæmopoietic factor which is not vitamin B, which is thermostabile, soluble in 80 per cent. alcohol, and not present in all yeast preparations. It is possibly some protein breakdown product. Apart from theoretical considerations as to the nature of this factor, it is a point of some practical importance to know how far marmite should be used in treating hyperchromic anæmias, since it is far less expensive than liver or stomach. When a patient is not desperately ill and it is possible to make repeated reticulocyte counts, marmite should be given by mouth for two weeks. If the reticulocyte count does not show the calculated maximum rise, liver or its substitutes should be given by mouth for two weeks. Again, if there is no adequate reticulocyte response, parenteral therapy must be instituted. The effect should again be checked by reticulocyte counts. If there is no appreciable reticulocyte rise within a further two weeks, although full doses were given, an effective extract was used and none of the inhibitory factors was present, then it is clear that the anæmia though simulating that due to a deficiency of the P.A. factor must have some other cause. There is no evidence at present available that prolonged treatment will produce a beneficent effect on the blood picture when initial treatment has failed.

Such a method of assay enables us to determine at least to some extent the nature of the deficiency present, and since accurate knowledge of the ætiology of any clinical condition to be treated is of value, is the ideal method. Having analysed the deficiency as far as possible, it is then legitimate to use parenteral therapy if it is preferred. Immediate parenteral therapy is only indicated when the patient is in extremis. Probably when the total red cell count is under 1,000,000 per c.mm. intravenous or intramuscular preparations should be given. In the presence of severe sepsis they may also be indicated. Their value in maintenance is discussed later.

Marmite may safely be given indefinitely to those anæmias that respond satisfactorily. Has whole liver any advantage over liver or stomach extracts? It clearly has the disadvantage of being extremely unpalatable when taken every day for a long period. Some observers believe that it is more satisfactory in the treatment of nervous lesions than any extract. In severe cases of subacute combined degeneration, therefore, the patient, if willing, should take whole liver or kidneys as far as possible, supplemented with extracts. Satisfactory stomach preparations are as reliable as liver preparations.

DOSAGE

It is difficult if not criminal to lay down any hard-and-fast rules concerning dosage. The response in different people is extremely variable, and each case must be judged upon its merits. In preparations for oral administration some patients require extract made from 3 lb. of liver a day, while others respond satisfactorily to similar extract from ½ lb. of liver. There is the same variability in the response to parenteral administration. Some patients will show a maximum response following the injection of extract prepared from 20 g. of liver, others require extract prepared by the same method from 100 g. of liver. The position is further complicated by the fact that extracts vary enormously in potency. This is in part due to differences in methods of preparation and in part to unknown factors. Even if two batches of extract are prepared by the same process, one may be active and the other not. No satisfactory indication is at present available as to the actual potency of any extract on the market. The majority are stated to be equivalent to so much fresh liver, which merely represents the amount used in their preparation. This is misleading since potency is always lost during extraction. An extract made from 6 g. of liver may be far more potent than one from 100 g. of liver. In actual treatment two questions arise: (1) What is the initial dose required to return the blood picture to normal? (2) What is the maintenance dose required to maintain this normal blood picture?

Initial Dose.—Three drachms of marmite, or half a pound of fresh liver or extract made from one pound of fresh liver should be regarded as a minimum daily initial dose if the P.A. factor is to be given by mouth. It is probably wiser to start with one pound of fresh liver a day, which can be decreased later. In the case of parenteral administration I give for the first week at least one, and preferably two, ampoules of Campolon daily—i.e., an extract prepared from 10 g. of fresh liver, and I am guided in further treatment by the clinical and hæmatological response. If this is satisfactory I reduce the dose to one ampoule every other day, and then to one ampoule once or twice a week.

Maintenance Dose.—Parenteral therapy is probably the cheapest and most efficient method of maintenance treatment. One ampoule of campolon once a week is usually sufficient to maintain a satisfactory blood picture. Until we know more of the body's ability to store the P.A. factor it seems wiser to give small doses frequently than larger doses at long intervals, though in case of necessity such a method appears efficient. It is possible by giving four ampoules of campolon at a single injection to obviate the necessity of treatment more than once in six weeks in some patients. Whether this is the ideal method remains to be proved. If extracts are given by mouth it is usually necessary to give extract made from at least half a pound of liver daily.

Indications for both an increased initial and maintenance dose are: (1) the presence of sepsis; (2) arterio-sclerosis as evidenced by raised blood pressure and thickened vessels; (3) cord lesions. This is especially true in the latter. It has been clearly shown that though the half pound of liver may be adequate to maintain a satisfactory blood picture, amelioration of nervous signs and symptoms only occurs when such a dose is doubled or trebled. All patients with Addisonian pernicious anæmia should be treated as potential cases of subacute combined degeneration of the cord and, therefore, given rather more of the P.A. factor than is sufficient to maintain a red cell count above 4,500,000 per c.mm. Patients with hyperchromic anæmia associated with sprue usually need no further therapy after recovery from the anæmia and other symptoms is once complete. Patients with pernicious anæmia of pregnancy, as distinct from Addisonian pernicious anæmia, developing during pregnancy, after delivery and initial cure of the anæmia do not relapse on cessation of treatment. Patients with Addisonian pernicious anæmia and with megalocytic hyperchromic anæmia associated with idiopathic steatorrhœa must take liver or its substitutes indefinitely.

HYPOCHROMIC ANÆMIA FACTOR

There is relatively little evidence as to the value of the hypochromic anæmia factor in liver isolated by G. H. Whipple and his co-workers. Whipple's most recent experimental work suggests that the liver contains factors essential for hæmoglobin regeneration independent of its content of iron and of the P.A. principle. Clinical corroboration of these experiments is not altogether satisfactory. Hypochromic anæmia in which adequate tests have been made appear to respond at least as well if not better to iron than to this factor.

IRON

The essential characteristic of anæmias that respond to iron is a diminution of hæmoglobin. It is rational to treat all anæmias with a low colour-index with large doses of iron. The red cells may be microcytic, they may be normocytic, or they may be megalocytic. The response to iron is clear-cut in all. Deficiency of iron may be due to defective intake, defective gastric secretion, or defective absorption. In the infant deficient storage in the liver during intra-uterine life appears to play a definite part. Roughly speaking, the only hypochromic anæmias that fail to respond to iron therapy are anæmias associated with sepsis or nephritis, splenic anæmia, acholuric jaundice, and anæmias not necessarily of the myelopthysic type associated with secondary carcinoma in the skeletal system. The presence of cancer alone does not inhibit the action of iron. I have seen a reticulocyte response as high as 15 per cent. in a patient with inoperable carcinoma of the rectum and a corresponding improvement in total red cell count, hæmoglobin, and clinical condition.

As in the case of the P.A. factor it is essential to give enough iron. The dangers of overdosage with oral administration are slight. Both in infants and adults ferrous salts appear more effective than ferric salts. The minimum effective dose of pil. ferri in an adult is 45 grains a day. The minimum dose of iron and ammonium citrate is 60 grains a day. Personally I always give 90 grains a day as an initial dose, and then reduce it. Patients with hypochromic microcytic anæmia of long standing are often rather difficult, and further treatment is rendered much easier if the initial response is dramatic. Certain refractory cases require even higher doses—350 grains of iron and ammonium citrate have been given daily over long periods without mishap. Many cases of idiopathic microcytic anæmia are complicated by menorrhagia. The anæmia is almost invariably primary. Adequate iron therapy will cure both conditions, a fact which was apparently recognised at the beginning of the last century and then forgotten. In a few instances it is necessary to induce an artificial menopause. This should not be done, however, until iron has been given an adequate trial. Recent gastric operation or gastric hæmorrhage is no contra-indication to the administration of large doses of iron. Iron therapy should be a routine post-operative and post-hæmorrhage treatment in all gastric cases. Just as a deficiency of the P.A. factor is permanent, so is deficiency of iron in many patients. Controlled and continuous treatment is essential both in idiopathic microcytic anæmia and in post-operative gastric cases. Certain patients with Addisonian pernicious anæmia, especially in the maintenance period of treatment, are also benefited by the administration of iron. Such patients usually show a low hæmoglobin value and achromic cells in stained films.

COPPER

It has been maintained that copper should be added to iron if the best results are to be obtained. Copper may be a toxic agent. It is unnecessary to prescribe it, as is often done, before it is known that iron alone is ineffective. If a patient fails to respond to adequate doses of iron it is then reasonable to try the addition of copper.

VITAMIN C

Vitamin C appears to exert a specific effect upon the anæmia of scurvy. The mechanism of its action is not understood. Since rather atypical forms of adult scurvy are probably more common than is realised, plentiful supplies of vitamin C should be given to all patients with hypochromic anæmia of unknown ætiology.

THYROXINE

The part played by the thyroid in hæmopoiesis is still undetermined. Hypochromic anæmia and megalocytic hyperchromic anæmia may be associated with myxœdema. In both types of anæmia, if a satisfactory response to appropriate therapy is not obtained, the possibility of an additional thyroid deficiency should not be forgotten. Thyroid medication in many cases will complete the cure.

An adequate and well-balanced diet forms an essential part in the treatment of all anæmias—i.e., a diet containing fresh red meat, green vegetables, fresh fruit, milk, and butter.

Transfusion

Hæmopoietic substances are often given to other anæmias than those dependent upon a deficiency of such factors. There is no evidence that they are of any value, and they are often only an unjustified expense. Such anæmias may be benefited by blood transfusions. Transfused blood may apparently act in two ways. It may supply sufficient blood to enable the patient to carry on for a week or fortnight but then has to be repeated as in aplastic anæmia. Transfusion also appears in some instances to stimulate hæmopoiesis. At present it is impossible to predict when this will occur. Provided adequate steps are taken to transfuse compatible blood there are, I believe, no contra-indications to transfusion. I have seen many patients benefited, and only one instance in which transfusion could possibly be said to have shortened life. It is always worthy of trial in anæmias which fail to respond to other treatment. Direct matching of the blood is essential, especially in patients who have been frequently transfused.

Splenectomy

The value of splenectomy in anæmia is as controversial as that of transfusion. It is of undoubted value in acholuric jaundice, and gives at least temporary relief in idiopathic purpura. Its value in early cases of splenic anæmia is less certain. In a certain proportion of patients it appears to cause amelioration of symptoms. Splenectomy should not be attempted until iron therapy has failed. Idiopathic microcytic anæmia may simulate splenic anæmia. The one responds to iron the other does not. This affords an excellent example of the value of carefully controlled treatment in the diagnosis of anæmias.

A VIRUS OBTAINED FROM INFLUENZA PATIENTS

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The epidemic of influenza at the beginning of 1933 afforded an opportunity of making an experimental study of this disease, the results of which are here embodied in a preliminary communication. Throat-washings were obtained from a number of patients as early as possible after the onset of definite symptoms. On the assumption that the ætiological agent of influenza was probably a filtrable virus the throat-washings were filtered before use through a membrane impermeable to bacteria. The filtrates, proved to be bacteriologically sterile, were used in attempts to infect many different species. All such attempts were entirely unsuccessful until the ferret was used and the first success was only secured towards the close of the epidemic.

The initial successful experiment was made with two ferrets, both of which received a filtrate of human throat-washings, both subcutaneously and by intranasal instillation. Both animals became obviously ill on the third day after infection and exhibited symptoms of the characteristic disease which is described below. It was found that the disease could be transmitted either by contact or by direct transference of nasal washings from a sick to a healthy ferret. At this point therefore the work was transferred to the Institute's farm laboratories at Mill Hill, where it could be carried out under the conditions of rigid isolation of individual experimental animals evolved and used by Dunkin and Laidlaw[1] in their work on dog distemper [*] (1926).

The Disease in Ferrets

The ferret disease is characterised by a two-day incubation period, a diphasic temperature response, symptoms of nasal catarrh and variable systemic disturbances. In the infected animal the temperature[†] rises abruptly about 48 hours after infection, often exceeding 105° F. or even 106° F. It subsides on the third or fourth day only to rise again on the fourth or fifth day. In the course of the next day or two the temperature gradually returns to normal, and in most cases remains thereafter within normal limits.

Coincidently with the primary rise of temperature the ferret looks ill, is quiet and lethargic, often refuses food, and may show signs of muscular weakness. The catarrhal symptoms usually begin on the third day. The eyes become watery and there is a variable amount of watery discharge from the nose. This nasal discharge at times becomes sticky and may be mucopurulent, thus causing matting of the fur along the edges and at the corners of the nostrils. The animal sneezes frequently, yawns repeatedly, and in many cases breathes partly through the mouth with wheezy or stertorous sounds which clearly indicate a considerable degree of nasal obstruction. Such obstruction rarely accompanies a copious nasal discharge. The tip of the nose is often very pale. The signs of illness may last for only a few days but sometimes continue for ten days, after which the ferret again becomes perfectly normal. There is considerable variation as regards both the temperature response and the intensity and time of appearance of the local symptoms. In a few ferrets a typical diphasic temperature response has occurred without any nasal symptoms, and in one case well-marked symptoms were noted without any elevation of temperature. These animals when tested later were found to be immune. Very occasionally a ferret, a short time after recovery, has had a relapse in which the temperature curve and the symptoms have been similar to those of the primary illness. The disease has never been fatal in the 64 cases observed throughout the full course of the illness. Fig. 1 illustrates the temperature response of a ferret which had a typical attack of the disease, with a relapse.

In ferrets killed during the first and second febrile periods the mucous membrane of the nasal passages shows acute inflammation. Sections across the turbinate bones show, in the soft parts, acute vascular congestion, dilated lymph channels, numerous leucocytes passing out through the epithelium, and serious derangement of this structure. There is almost invariably complete disappearance of ciliated cells, and occasionally patchy necrosis of the whole thickness of the epithelium may be observed. No histological feature, such as an inclusion body, has as yet been discovered which can be called characteristic of the disease.

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[*] It is essential, when employing ferrets as experimental animals, that all purchased animals be quarantined for 14 days before being brought into use. If this precaution be omitted it is probable that latent distemper infection will, sooner or later, give rise to serious confusion. There is another acute infectious disorder, the ætiology of which is still obscure, which may also give untold worry to the research worker. Neck abscesses may develop in older animals and examination for these is essential if error is to be avoided.

[†] The normal temperature of a ferret is somewhat variable but it is unusual in a quiet animal to record a reading of over 103·5° F.

Passage of the Virus

The disease has frequently been transmitted by placing a normal ferret in the same cage as a sick one for 24 hours. The majority of virus passages, however, have been made by the following technique.

The infected animal is killed when showing symptoms, often at the beginning of the second temperature rise. The turbinates are scraped out, ground up with sand, and emulsified in about 20 c.cm. of equal parts of broth and saline. The emulsion is lightly centrifuged, and about 1 c.cm. of the supernatant fluid is dropped into the nostrils of another ferret. In this way 26 serial passages of one strain of virus have been made, and every animal of the series has shown the typical temperature response together with definite symptoms of the disease. A hundredfold dilution of the usual preparation has also been found to be regularly infective.

The method we are forced to employ has the serious disadvantage that it is impossible to make accurate quantitative experiments. The concentration of virus in the emulsion is unknown and it is impossible to determine what proportion of the amount instilled into the nose is retained, but no other route of inoculation has yet proved successful and other tissues tested—e.g., spleen, lymph glands, and blood—have been uniformly non-infective.

Throat-washings from eight human cases diagnosed as influenza have been inoculated into ferrets; five of these produced the ferret disease described above, although four were tested before the importance of utilising temperature records was recognised. From one of these cases throat-washings on the first and second day, and nasal discharge on the third day, were infective for ferrets, but on the sixth day no virus was recoverable from the nasal discharges, and on this day there was considerable improvement in the patient's catarrhal symptoms. A filtrate prepared from an emulsion of lung tissue from a fatal case of influenzal pneumonia likewise produced the ferret disease.

Throat-washings from four human subjects not suffering from influenza were non-infective. Of these, two were taken from men who had recovered from influenza and who at the time of their illness had supplied washings which were the genesis of the transmissible strains of virus with which we have done most work.

The nasal secretions of a man who was suffering from a severe common cold were also non-infective.

Filtrability of the Virus

Most of the human throat-washings were filtered before use through membranes having an average pore size of 0·6 μ. The membranes were Gradocol membranes made and supplied by Mr. W. J. Elford, Ph.D.[2] (1931), to whom we are greatly indebted. The filtrability of the virus after ferret passage was tested repeatedly. Invariably filtrates of an emulsion of the nasal mucosa from a sick ferret through membranes having an average pore size of 0·6 μ were found to produce the typical disease. A tight membrane (a.p.s. 0·25 μ) was used on one occasion only; the resultant filtrate was infective. It is probable therefore that the virus of ferret influenza is no larger than the viruses of vaccinia or herpes febrilis.

The infectivity of the filtrates, coupled with the fact that we failed to grow anything from the filtrate on a variety of media under aerobic or anaerobic conditions, has convinced us that we are dealing with a true virus disease. We have examined a number of bacteria from ferrets and human beings and so far we have failed to discover any micro-organism which will mimic the disease when cultures are instilled into a ferret's nose. *Hæmophilus influenzæ*, *Hæmophilus canis*, and *Hæmophilus influenzæ* (*suis*) administered along with virus produced at most only minor variations in symptoms.

Active Immunity

Ferrets which have recovered from the disease are invariably found to be immune to subsequent infection with the same strain of virus. This holds true whether the immunity test is done a few days after the disappearance of symptoms or five or six weeks later. One of two ferrets tested after the lapse of three months proved to be solidly immune and the other had a very mild attack of the disease with prompt recovery. At the present time it remains uncertain whether viruses from different human sources cross-immunise completely. No means of securing an active immunity apart from giving the disease itself have yet been found.

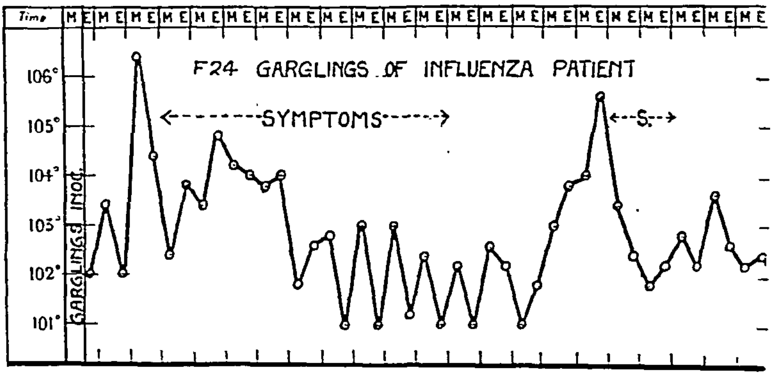

FIG. 1.—Temperature chart of ferret infected with garglings from a patient. The relapse is very unusual.

Virus Neutralisation

The serum of a ferret which has recovered from the disease will neutralise strong emulsions of the virus, provided that the serum and virus are mixed together before being inoculated intranasally into the test animal. Normal ferret serum has no such power of virus neutralisation, even when dilute virus is used in the test. Fig. 2 illustrates a virus neutralisation experiment.

Many human sera are capable of neutralising dilute ferret virus. Sera obtained from ten patients after their recovery from influenza were all found to have neutralising antibodies, but their demonstration was not constant, for two of the sera when retested failed to protect the experimental animals. Such irregularity is probably due to our inability to measure the dosage of virus employed, and it is quite possible, under the conditions of the only test at present available, that an overwhelming dose of virus is given *in one case and not in another.* Control ferrets inoculated with virus alone or with virus mixed with normal serum were always included in these neutralisation tests; they *invariably* developed the disease.

Three human sera from individuals with no history of a recent attack of influenza were also tested: one showed neutralising properties; the other two were inactive. Such a result would be expected in tests on a population shortly after an epidemic of influenza.

Relationship to Swine Influenza Virus

A disease of swine, which arose spontaneously at the time of an influenza epidemic in America, has been described by Shope[3] (1931, 1932). We are indebted to him for samples of the swine influenza virus, and also for cultures of *Hæmophilus influenzæ (suis)*, an organism which plays an important rôle in the serious and fatal cases of the swine disease. The virus when inoculated intranasally into ferrets gave rise to a disease with diphasic temperature response, and all the symptoms described above—in fact a disease indistinguishable from the ferret disease caused by virus of human origin. The swine influenza virus was also readily transmissible serially through ferrets. In striking contrast to swine influenza the ferret disease was not *modified* in character when cultures of *Hæmophilus influenzæ (suis)* were inoculated together with the virus.

Cross-immunity tests have shown that this swine influenza virus bears a close antigenic relationship to the virus strain of human origin which has been chiefly used in our work. Ferrets after recovery from disease caused by the swine virus proved to be solidly immune to the human strain of virus. Ferrets convalescent from the human virus disease were not completely immune to the pig strain of virus.

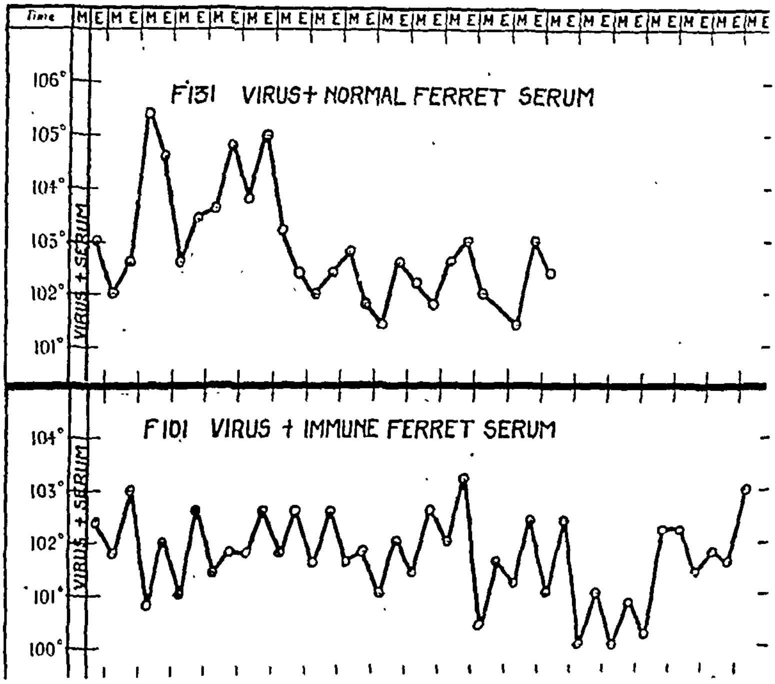

FIG. 2.—Upper temperature chart. Ferret received a mixture of virus with normal ferret serum. Lower temperature chart. Ferret received a mixture of virus with immune ferret serum.

Summary and Discussion

A disease of ferrets, produced by the intranasal instillation of filtrates of throat-washings obtained from influenza patients, is described.

The disease is transmissible serially in ferrets either by contact or by the intranasal instillation of virus-containing material.

The infective agent has, so far, only been recovered from the nasal passages of sick ferrets.

The disease was produced by five of the eight throat-washings obtained from influenza patients in the early stages of the disease.

Throat-washings from healthy persons and influenza convalescents caused no illness in ferrets.

The nasal secretions from a subject with a severe common cold caused no illness in ferrets.

Human sera, particularly those from influenza convalescents, were found to contain antibodies capable of neutralising the virus of the ferret disease.

Swine influenza virus caused a disease in ferrets which was indistinguishable from that produced by virus of human origin, and the pig and human viruses have close antigenic relationships.

We consider that the evidence given above strongly suggests that there is a virus element in epidemic influenza, and we believe that the virus is of great importance in the ætiology of the human disease. This view receives considerable indirect support from the fact that Shope found that the pig virus was the essential factor in swine influenza. The epizoötic disease could only be produced by combining two separate agents: (1) a virus; (2) *Hæmophilus influenzæ (suis).* The virus *alone* produced a disease so mild that it was difficult to recognise, and the bacillus *alone* appeared to be harmless. Our results with ferrets, so far as they have gone, are consistent with the view that epidemic influenza in man is caused primarily by a virus infection. It is probable that in certain cases this infection facilitates the invasion of the body by visible bacteria giving rise to various complications. Analogous examples of this type of double infection are seen in swine influenza and dog distemper epizoötics. Decisive evidence on this point, and indeed on the importance of the virus we have described, can, we feel, only be secured by intensive study during an influenza epidemic, since direct experiments on man are fraught with difficulties. We are led to the publication of this preliminary note by the hope that our findings may be of assistance to those, wherever they may be situated, whose fate it may be to study the next epidemic of influenza.

We desire to thank the various practitioners through whose kindness we obtained throat-washings from influenza patients.

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HARMOL HYDROCHLORIDE AND *O-N*-PROPYLHARMOL LACTATE IN ANGINA PECTORIS

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Gunn and his co-workers[1 2] have shown that harmol and some of its derivatives (which are prepared from harmine, an alkaloid obtained from the seeds of *Peganum harmala*) exert a powerful dilator action on the coronary vessels in laboratory mammals. It therefore seemed possible that these drugs might be of value in the treatment of angina pectoris in man. Preparations of harmol hydrochloride, harmol lactate, and of *O-n*-propylharmol lactate have been supplied by Messrs. Boots Pure Drug Co., Ltd., to the Therapeutic Trials Committee of the Medical Research Council, at whose request we are at present engaged on a clinical investigation of this subject. A fuller report will be published later, and in the meantime the committee have asked the manufacturers not to issue these drugs for trial except through the Medical Research Council.

In angina pectoris, drugs may be used in three ways: (1) to cut short the attacks; (2) to forestall individual attacks, by giving the drug a few minutes before an attack is expected (i.e., before the patient gets out of bed, or before he goes for a walk); or (3) to reduce the frequency and severity of attacks by continuous treatment.

As regards the first of these methods of treatment—namely, the abortion of attacks—we have been able to show in two cases that harmol hydrochloride (gr. ½) when given by subcutaneous injection alleviates the pain, as one might expect in view of its proved pharmacological action. Clinically, however, we do not attach great importance to this finding, because the drug has an irritant action on the subcutaneous tissues, and similar relief can generally be obtained from the use of trinitrin or amyl nitrite, procedures which are obviously simpler and more practicable than subcutaneous injection.

The problem of anticipating and so preventing individual attacks is at present engaging our attention, and we are comparing the potency of the harmol derivatives with that of the nitrites, which are known to be of value for this purpose.

The assessment of the value of drugs in the continuous treatment of angina pectoris is a problem which presents the greatest difficulty from an experimental standpoint; for, not only is the frequency of attacks profoundly affected by emotional disturbances, by variations of temperature, and by other extraneous factors, but, even under apparently similar conditions, the number of attacks each day is apt to vary so greatly, in the same subject, that it is often impossible to obtain satisfactory control observations. For example, one of our patients who was treated with various drugs, and from time to time given merely a simple placebo, had during one control period, lasting 21 days, only eight attacks, while during a later control period, lasting 27 days, he had 96 attacks. Unless, therefore, the observations be continued over a prolonged period, with frequent controls, the impressions obtained are apt to be fallacious. Again, some patients suffering from angina become rapidly worse, in spite of all methods of treatment which may be tried, while others steadily improve, without any treatment. Clearly neither of these groups offers suitable material on which to test a new drug. It is only from patients whose condition remains fairly stable that therapeutic deductions are justified.

We have now studied the effect of continuous treatment with harmol hydrochloride by mouth in 41 cases of angina. In seven only was there any evidence that the patient derived benefit from the drug. This is not surprising, for Evans and Hoyle[3] have recently shown that none of the known vasodilator drugs is of any value for the *continuous* treatment of angina. Their action is too evanescent. In fact, the only drugs which appear to diminish at all the frequency of attacks are those which act centrally, such as the bromides, chloral, the opium derivatives, and phenacetin.

Except in a single instance, no toxic symptoms were observed with harmol hydrochloride in doses of grs. 2 or less by mouth three times a day, though larger doses were liable to give rise to epigastric discomfort, anorexia, nausea, vomiting, lack of energy, palpitation, and occasionally diarrhœa. Acute attacks of renal colic occurred in three patients who were taking large doses (grs. 4 or 5 three times a day).

We have also treated 20 patients continuously with *O-n*-propylharmol lactate by mouth. This preparation was shown by Gunn and Elphick[1] to be much more active than harmol hydrochloride as a coronary dilator, but also more toxic. The dose should not exceed gr. 1 three times a day. Four early cases appeared to derive benefit from this drug, but in the more severe type of angina no improvement was observed. It is only fair to say that in most of these cases other drugs reputed to be of value in the treatment of angina had already proved equally useless.

Further work is necessary before we shall be in a position to express an opinion regarding the value of *O-n*-propylharmol lactate in the continuous treatment of angina, or on the value of the harmol derivatives in preventing individual attacks; but from the preliminary observations referred to above we feel justified in drawing the following conclusions: (1) Given hypodermically in ½-grain doses during an attack of angina, harmol hydrochloride will relieve the pain; but owing to its irritant action on the subcutaneous tissues, this method is not practicable. (2) In the continuous treatment of angina harmol hydrochloride is without effect, but so are most other vasodilator drugs. (3) Toxic symptoms are liable to appear if the oral dose of harmol hydrochloride exceeds grs. 2–3, and that of *O-n*-propylharmol lactate exceeds gr. 1 three times a day.

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SOME PROBLEMS OF LOBAR PNEUMONIA *

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DURING the past 18 months, under the stimulus of responsibility for rather more than 200 pneumonia patients between the ages of 16 and 60, I have found it necessary to reconsider what is known about the pneumococcus, its mode of invasion, the lesion it produces, the recovery process, and the possibility of preventing or modifying infection and its subsequent results.

The Pneumococcus

From the standpoint of clinical pathology it is necessary to agree on the characteristics of the pneumococcus. The following points will probably be generally accepted: (*a*) it is a gram-positive diplococcus; (*b*) it is capsulated when pathogenic in man; (*c*) it is bile-soluble; (*d*) it ferments inulin; (*e*) it does not produce granularity in broth; (*f*) it readily undergoes autolysis; and (*g*) it is intensely pathogenic to mice and rabbits. These facts are important because there is no group serological reaction and its differentiation from the streptococcus may be by no means easy. Furthermore, the organism only partly fulfils Koch's postulates. Virulent organisms reproduce pneumonia only when injected into monkeys via the trachea, and the technique is far from simple. Other methods of injection may produce local abscess-formation, general septicæmia or general peritonitis, according to the method and site of injection, but not pneumonia.

The result of bacterial invasion must always be a mean between the virulence of the organism and the susceptibility of the host. At one end we have high virulence and complete susceptibility, and at the other, low virulence and complete resistance. The result is either septic infection and death in a matter of hours or, on the other hand, no lesion at all. As resistance to virulent infection rises, so the disease has the time in which to develop its proper signs and symptoms. From this it follows that in an animal like the rabbit, which is completely susceptible to the pneumococcus, inoculation results in septicæmic death within 48 hours. If, however, the animal be given a few prophylactic inoculations with a suitable vaccine, its resistance may be raised and, instead of a 48-hour death, we have a disease which lasts a few days, and may show pulmonary lesions but little removed from pneumonia. In this way the pneumococcus is brought almost within Koch's original postulates, and material help may be afforded for the more complete study of the serological and other changes taking place in the course of the disease.

Laborious and careful serological studies have given us at least four serological groups of pathogenic pneumococci, the fourth group being a very mixed bag of such organisms as are not agglutinated by sera from the other three strains, but yet can be regarded as legitimate pneumococci in that they have been recovered from clinical cases of lobar pneumonia and fulfil the conditions as regards morphology and other characters.

It has long been known that the pneumococcus, in artificial culture, rapidly loses two things: its virulence and its capsule, and when this has occurred the colonies, as seen on an agar plate, lose also their bright, smooth, shining appearance; they become more opaque and develop a definitely rough surface. We have therefore five types of the organism: the four American groups and a rough form, into which any of these quickly degenerates on culture, becoming thereby alike non-capsulated and non-pathogenic. It seems logical therefore to regard the capsule as a structure of possible import, and this idea is strengthened by the known fact that pneumococcus type III. has a much more clearly defined and larger capsule than any other group, and equally it has a much higher virulence. Again, it is known that injection of the capsulated form of the pneumococcus into mice and rabbits gives rise to no phagocytosis, whereas injection of the rough non-capsulated form permits immediate phagocytosis, even in these animals, and no harm results. There is therefore the possibility of two separate problems: the diplococcus and its capsule, possibly the organism and its protective armour.

Extensive serological studies have revealed many other facts, some of which may have practical bearing. Antisera produced by injection of the decapsulated form of all the pneumococci give a reaction common to the species, but with no group distinction. Injection of the capsular substance produces no activity in the serum, for it is non-antigenic. The specific group serum is only produced when capsule and organism are together present as antigen. Chemical analysis has shown that the capsular material, the specific soluble substance, is a polysaccharide and that its chemical composition differs in the three recognised groups in that type I. contains nitrogen, type II. is dextrorotatory, and type III. is lævorotatory. This specific material is rapidly generated in pneumococcal infections and can be recognised in the body fluids, including the urine, at an early date after infection. This fact may be used to determine the type of an infection in some cases.

No toxin has as yet been identified experimentally, either from the organism, the capsular material, or the metabolic products of virulent pneumococci, in spite of the fact that pneumonia in the human subject is perhaps the best common example to-day of acute toxic disease.

The pneumococcus can frequently be recovered from the mouth or upper reaches of the respiratory tract of healthy persons. These organisms are commonly found to belong to the fourth group, which in itself means very little; the most important point to be determined is their pathogenicity. This procedure presents great difficulty, since virulence is rapidly lost in artificial culture unless special precautions are taken, and the animals commonly used are so susceptible that it is believed that the introduction of a single pneumococcus into the peritoneal sac of a mouse is likely to be fatal. The recently introduced method of applying the culture to the shaven abdominal surface may make this line of investigation rather easier in the future.

Antisera of high potency have been produced by systematic injection of horses. Such sera are capable of protecting against many times the minimal lethal dose of virulent homologous cultures. It has been shown that the antibody is carried down by the precipitated globulin fraction, and this means has been adopted for concentrating a serum, thereby diminishing the volume of a protective dose and avoiding the major reaction which results from a very large dose of horse serum. Such sera have been found to react well with type I. infections, only half as well with type II. and not at all with type III. or group IV. There is some reason to believe that the serum acts by depriving the virulent pneumococcus of its capsule, thereby permitting phagocytosis and recovery.

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* Being the substance of a paper read before the Blackburn Medical Society, January, 1933.

Mode of Invasion

The fact that the pneumococcus can be recovered from the upper air-passages suggests that any cause which diminishes the resistance of the host may permit infection. On the other hand, many of the organisms found in healthy people have also been found to be avirulent, and this branch of inquiry sadly needs further work. Cases of pneumonia arising from exposure and alcohol, or both, are most commonly either type III. or group IV., and types I. and II. are essentially those which produce epidemics.

Both clinical and experimental evidence tends to show that infection takes place through the respiratory tract, but the problem still remains whether spread takes place (*a*) directly along the air-passages to one or more lobes, (*b*) via the lymphatics and peribronchial stroma, or (*c*) via the blood stream in the form of a temporary bacteræmia with subsequent fixation in the lung tissue, in exactly the same way as is known to take place in typhoid infections, where bacillæmia is the rule up to the ninth day, with fixation in Peyer's patches later.

Up till recently it was fairly generally held that invasion in pneumonia did take place in that way. Had this been true, then the earlier the blood cultures were made in the disease, the greater would be the chance of positive results, provided always that the number of observations was sufficient. Table I. gives the results obtained in the past 18 months, but it must be remembered that positive findings will always be vastly more valuable than negative ones, since the 10 c.cm. of blood used must always leave a wide margin of error except in the very heavy infections. Other observers have been more fortunate in recovering the organism, largely because culture has been made more frequently. During the past few months cultures have been made daily until the temperature has become normal, and the proportion of positive findings has risen considerably. In spite of this, the fact remains still that it is not in the first three days of the disease, nor in the obviously more severe cases, that the positive findings are made.

TABLE I.—*Blood Cultures*

First Series: Done occasionally

Day of disease	1	2	3	4	5	6	7	8	9	later.
Positive	—	2	3	3	1	6	1	2	1	2
Negative	1	4	15	33	38	29	20	23	5	—

Second Series: Cultures made daily

Day of disease	1	2	3	4	5	6	7	8	9	later.
Positive	0	0	1	2	4	3	4	2	2	1
Negative	1	9	17	30	31	29	24	24	14	6

Positive findings 10 per cent.

Mortality in Bacteræmic Cases

Day of disease	1	2	3	4	5	6	7	8	9	ater.
Type I. recovered ..	—	—	1	1	2	5	2	1	1	—
Type I. died	—	1	2	3	1	3	1	2	—	3
Type II. recovered ..	—	—	—	—	1	1	1	—	—	—
Type II. died	—	—	1	1	1	—	—	—	—	—
Group IV. recovered ..	—	—	—	—	—	—	—	—	1	—

Septicæmia therefore does not seem to be a necessary event in pneumonia. Such a view is further supported by the fact that consolidation of lung does not follow intravenous injection of the pneumococcus. The experimental evidence of R. L. Cecil and F. G. Blake, supported by the radiological pictures obtained from very early cases, goes to show that invasion of the lung begins at the lung root and spreads outward into the lobe, until the consolidating process is arrested by the dividing septa of the lung. Spread would therefore appear to take place along the supporting stroma of the viscus, since consolidation of the root area would most probably result in mere collapse of the peripheral lung tissue. This mode of invasion would explain the lobar distribution, a matter of some difficulty if septicæmic invasion be accepted. The positive blood culture thus becomes either a fortuitous event or an index of heaviness of infection according as recovery or death may follow.

The Pneumonic Lesion

The lesion produced is familiar to all; the three stages of congestion, red hepatisation and grey hepatisation constitute the A.B.C. of medicine. The change in colour from red to grey may be due to many factors—e.g., diminished blood entry; leucocytic invasion; decoloration by hydrogen peroxide, which the organism is known to generate; or tryptic digestion of the exudate. Grey hepatisation is believed to be an essential step in the process of resolution; when this stage is delayed or absent complete recovery cannot and does not take place. There is further evidence that when virulent pneumococci can be grown from material removed by lung puncture after the fifth day of the disease, a fatal result may be confidently expected. This procedure has not been used in this series, and it would argue strongly against the lung puncture method of typing, as some have suggested; although the fifth day in the disease is late for such a process, yet it is always necessary to catch hares before cooking them.

Clinical evidence and morbid anatomy alike teach us how relatively common, in pneumonia affecting one lobe, is a small consolidated area in the root zone of the other lung. This may well be borne in mind, since it may lead to the erroneous opinion that two whole lobes are consolidated, or that the classical tubular breath sounds are merely conducted to the opposite side of the chest. In this series both radiology and morbid anatomy strongly suggest that such small areas in the opposite lung are very common but have no bearing on the prognosis.

Resolution is believed to take place as the result of ferments arising from the dead bodies of the leucocytes, and two enzymes have been identified. It is possible that pyrexia and intoxication arise from the proteose absorption resulting from this liquefying process, and that the crisis is determined when the enzyme action goes beyond the proteose stage of digestion. Further lesions may, however, occur and allow the disease to extend beyond its allotted nine days, and this may be due to so-called delayed resolution or unresolved pneumonia, or to one of the many complications—still lesions produced by the pneumococcus.

There are probably few conditions which tax the resources of the clinician more than the case of pneumonia which fails to have a satisfactory crisis by the tenth day. The physical signs may show little or no change, or on the other hand, distinct recessional changes may appear; and yet the patient does not recover. It is tenable that a diagnosis of delayed resolution can and should only be made when every other complication has been carefully and surely excluded. To do this completely may require wise judgment and not a little pluck. The spread of the consolidating process to another lobe of the lung does not by any means always indicate a prolonged attack, and critical examination of the clinical condition often gives no indications of further spread; pulse-rate, respiration-rate, and temperature are no higher, cyanosis is not increased nor toxæmia deepened, the condition of the other lobes being indicated only to radioscopy or stethoscope.

TABLE II.—*Type Incidence and Mortality*

—	Cases, total.	Deaths.	Relapse.	Crisis delayed beyond the tenth day.
Type I. ..	99	20	2	9
„ II. ..	41	18	2	1
„ III. ..	1	1	1	7
Group IV. ..	48	5	4	5

Note.—50 per cent. of patients reach hospital before the end of the third day of illness. All the cases of relapse recovered.

Early relapse may give rise to the gravest anxiety, but it appears that this is quite unfounded. This event is uncommon, and one is in agreement with other observers in that relapse usually lasts three days, is rarely or never fatal, may occur within seven days of the previous crisis, and is of course of the same type pneumococcus as the original attack. The serological events which permit of such an occurrence are not easy to interpret, for it is remarkable that protection by active immunisation can rise to a point at which recovery takes place, fall so rapidly as to permit of reinfection in under a week, and yet be able to rise again sufficiently rapidly to terminate the disease within only one-third of the usual time. The possibility of the relapse being due to invasion by pneumococci of another group must always be excluded, more particularly in hospital, where other cases of other groups are almost sure to be present in the same ward.

Much has been written about positive blood cultures, and it has become the rule to regard all such cases as severe infections. It appears from this series that a positive finding on a single occasion is of little moment, but that a very severe course is followed by all cases which show a constant bacteræmia. Such a conclusion makes it difficult to accept evidence of efficient serum treatment based upon cases where only once has the blood culture proved positive.

Complications

Ulcerative endocarditis due to the pneumococcus is fortunately rare, but it is interesting, since its appearance forms one of the definite difficulties in the way of serum production for curative purposes. G. F. Petrie and others have recorded verrucose ulcerative endocarditis arising in horses during the process of immunisation for the preparation of protective sera. In these animals the persistent septicæmia often yields a rough form of the pneumococcus, whereas such cases as have occurred in this series have yielded the smooth, capsulated, virulent form of the same type as caused the original pneumonia.

Empyema as a complication or a sequel of lobar pneumonia is too well known to need more than passing reference. The causative organism is as a rule of the same type as the originating pneumonia. The pus is thick and creamy and contains the familiar fibrinous masses. The exudate forms a localised abscess shut off by pleural adhesions which can be opened by the surgeon at an early stage without fear of pneumothorax. Such cases usually heal quickly and well, with satisfactory lung expansion. It is this group which yields such satisfactory results, as opposed to the streptococcal group which is still liable to a high mortality.

In this series the hectic temperature and profuse sweating commonly thought to be indicative of empyema formation was not seen, and in most of these cases the time from the termination of the pneumonia to the opening of the empyema was almost or quite apyrexial; it is probably important to appreciate that this is so in the pneumococcal group, as contrasted with the streptococcal group, where much more pyrexial upset is liable to occur. It was found, in common with most other observers, that the type I. organism was most frequently responsible for the abscess.

TABLE III.—*Complications: Empyema Developed in 14 Cases*

Type I. ..	.. 7 cases.	Group IV. ..	.. 2 cases.
„ II. ..	.. 1 case.	Fœtid ..	.. 2 „

Pyopneumothorax: 2 cases (type I. and group IV.).

Fœtid empyema as a sequel to pneumonia is a recognised though rare event, which would argue gangrene of lung or a bronchial fistula. In either event we should expect a fœtid sputum, containing the same multiplicity of organisms as is found in the fœtid pus of the empyema, but this was certainly not so in three of the four cases which occurred in this series.

Pyopneumothorax arising in the course of pneumonia is so unexpected as possibly to lead to the opinion that the tubercle bacillus is the likely cause. Such an error is easily corrected by finding in the pus the same type pneumococcus as caused the originating pneumonia. The subsequent treatment is difficult, and must be largely determined by observation of the intrapleural pressures, but a happy result may be obtained in some cases. It should be remembered that pneumothorax, when the lung is consolidated, is not followed by collapse of the solid area, but mediastinal dislocation from a rising intrapleural pressure may still occur and become a definite menace.

Pneumococcal arthritis appears to be uncommon, but its method of origin is not in doubt when bacteræmia is known to have been present. Evacuation of the pus by aspiration shows the presence of a good deal of admixed glairy mucus, and the same type-organism as caused the original pneumonia. Normal saline is very lethal to the pneumococcus, and washing out the joint with this fluid through the aspirating needle is quite effective and in some cases an actual "restitutio in integrum" can take place.

Although pneumococcal meningitis is well recognised as a complication of pneumonia, yet it has not been correctly diagnosed in any case in this series. It is known to have occurred in two cases, for it was found quite unexpectedly at routine post-mortem examination. Its frequency, however, is not known, since many fatal cases were not subsequently examined, in the absence of permission.

Recovery

The process of recovery, as observed clinically, is so striking as to invite postulates on the precise mechanism which brings it about. It is well known that the extent of the consolidation does not determine the severity of the symptoms, any more than the cyanosis indicates the amount of lung tissue out of function. The crisis is accompanied by no recognisable changes in the lung condition, yet the drop in frequency of pulse and respiration is no less marked than that of the temperature.

We are therefore driven from a mechanical to a toxic explanation of the respiratory condition, and the grade of toxæmia is our estimate of the severity of an attack. A slowly acquired active immunity in which the antitoxic value of the circulating fluids suddenly overtops the toxic state would provide an adequate explanation of the crisis with all its accompaniments. The fact remains, however, that no toxin from the pneumococcus has ever been demonstrated. Dead pneumococci in enormous numbers can be injected intravenously without any effect, the blood from a heavily infected moribund rabbit may be filtered and injected into another rabbit without any effect whatever; enormous doses of culture-filtrate are tolerated by mice; concentrated specific soluble capsular substance is quite innocuous. It is conceded that agglutinins may arrest blood infection, precipitins may neutralise specific polysaccharide and together a bacteriotropic effect may be produced which permits of phagocytosis; but the fact still remains that there is no evidence whatever for any belief in a toxin-antitoxin reaction. We are thus left without an explanation of the outstanding feature of the disease, but it is one of the characteristics of the pneumococcus that it undergoes autolysis and disappears from cultures in two or three days; this inherent character may account for the crisis.

Again, the range of growth of the organism only extends to an acid death point of pH 5·0, and it has been shown that the press-juice of the consolidated lung may become sufficiently acid to cause the death of the organism. Further, the pneumococcus has been shown to produce hydrogen peroxide in the process of growth, and it is possible that this product in the lung may inhibit or kill off the organism at a certain point. We thus have three factors which together or separately may account for the crisis without postulating any antitoxic process which so far has never been demonstrated.

The early relapse, so short a time after crisis, would indeed be very difficult to explain were a toxin-antitoxin reaction responsible for the crisis, but at the same time the very character of the relapse attacks demonstrates that some protective mechanism must be at work. There seems to be no acquired immunity to speak of after an attack of pneumonia, and recovery takes place from factors other than those of immunity. This very factor of absent immune protection has of course been recognised for a very long time, as it is known that each attack of the disease seems to render certain individuals more liable to another. Since experiment has failed to show any toxin-antitoxin reaction with the pneumococcus—and since the agglutinins, precipitins, and bacteriotropins are said to be only concerned with the prevention or cure of a pneumococcic septicæmia—it appears that the source of the bactericidal substances in the consolidated area should be from the leucocytes and the known products of the pneumococcal metabolism such as acid and hydrogen peroxide. Resolution is believed to take place from ferments liberated by the dead bodies of the leucocytes, and thus it appears that factors promoting resolution are acidity, oxidation, and diminished serum antitrypsin. The enzymes liberated by the dead leucocytes are said to produce proteoses from the inflammatory products and these are capable of causing pyrexia on absorption, but when the proteolytic process has gone beyond the stage of proteose production, pyrexia is no longer caused by absorption and the temperature falls critically.

Turning now to the clinical side of the crisis, it is by no means uncommon to find that the temperature which previously had been high has fallen to normal, but without any amelioration of the clinical condition; the pulse- and respiration-rate have not dropped and the temperature soon rises again. Such a fall of temperature frequently antedates the crisis by 24 hours. The physical signs in the lungs show no changes whatever, and even the appearance of redux crepitus is not in any way dependant upon the crisis, for it may appear several days before or not until some days after the crisis.

There appears to be no connexion between early crepitus of the large moist variety and an early crisis. Nor is there any connexion between so-called massive pneumonia, in which an obstructed bronchus obliterates the loud breath sounds, and the severity of the attack; in fact most patients, if carefully watched, will show this sign at some time or other in the course of the disease. If we are at a loss to explain the crisis pathologically, so are we also unable to fortell its occurrence, or even to recognise the fact that it has taken place by any change in the clinical condition of the lung.

In this series of cases a certain number of temperature charts have shown a sudden critical drop to normal with a return to the previous high level within the next four hours. In some of these there was clinical evidence that extension to another lobe took place at this time; it is therefore possible that crisis had occurred in the original consolidated area but that spread had taken place into another lobe. If this be so, then it must follow that crisis in the second affected area is reached in the remarkably short time of 24 to 48 hours, such being the usual period to elapse before the true and permanent crisis takes place.

Prevention and Treatment

The close association between the catarrhal cold or influenza on the one hand and broncho-pneumonia on the other does not appear to apply to acute lobar pneumonia, although it is very true that the same climatic conditions favour all these lesions. The amount of crude dirt in the atmosphere has been shown statistically to have a very direct bearing, and it might be profitable for this great industrial area (Blackburn) to pay more attention in the future than it has done in the past to the diminution or prevention of atmospheric pollution, for it is quite possible to prevent the pall of smoke over a town.

It is usually held that types I. and II. of the pneumococcus are chiefly responsible for the epidemics of the disease, and these appear to return with great regularity during the winter months of each year. Type III. in this series cannot be said to exist and there is much evidence that group IV. is a very much milder variety than the rest. Prophylactic inoculation by three large doses of pneumococci types I. and II. might therefore reduce the incidence of the disease to a very considerable degree if used throughout a community, and such figures as exist on this subject do show very encouraging results both in America and South Africa. No attempt along these lines has been made in this country, but it is rather obviously a method which might well be tried by those individuals who repeatedly suffer from pneumonia, more particularly if an autogenous vaccine against their own special variety of the pneumococcus can be made. It must, however, be remembered that no antipneumococcal vaccine is likely to be effective unless the capsulation and the virulence of the organism are maintained up to its death point.

The hospital treatment of pneumonia, carried out as it is in wards set aside for the purpose, must increase the risk of infection to all workers within the ward. For this reason, amongst others, the nursing of this series of cases has been carried out with the ward windows permanently wide open whatever the weather. Although the wards are always cold, yet the patients prefer it so, and usually complain bitterly if the windows, having been closed for the physical examination, are not opened again as soon as the patient is covered up. It is probable that this practice has materially helped to protect the workers from infection and the patients from cross-infection. It is probably equally important to adopt the same precautions in the private house, where infection of other members of the family takes place more frequently than seems altogether necessary.

The routine use of oxygen through a Woulfe's bottle, by which the rate of supply can be easily gauged, for 15 minutes in every hour, for all cases showing cyanosis or respiratory embarrassment, has been adopted. The gas is always delivered through a nasal catheter and has caused little complaint. The method seems to be the best, simplest, and most efficient with due regard to economy.

The routine use of digitalis is not regarded as desirable, but the frequency of spasms of auricular fibrillation make this a feature which will always require careful exclusion. A special watch for them should be kept, and when they appear digitalis in full doses is urgently called for. A few minims four-hourly would then appear to be futile, but the steadying effect of three or four drachms will be seen in as many hours. The systematic use of glucose will help to protect the heart against the grave toxæmia of the disease, and it has been found that large amounts are tolerated without glycosuria; there appears therefore to be no call for insulin as well, as has recently been shown in diphtheria.

The only known group of drugs with any semblance of specific action in this disease is the quinine derivatives, and of these optochin is the best known. There is some evidence to show that, if administered early in the disease, it tends to cut short the attack, but its toxic qualities have made it unpopular; optic atrophy is said to have resulted from its use.

Much harm may be done by frequent washing and sponging of the patient, particularly if the temperature is thereby lowered, since most patients running a high temperature are showing a good response and finally emerge well from the ordeal.

Although vaccines have been recommended and have been stated to yield good results, yet it is difficult to believe that much can be accomplished within the very short period which the disease allows. On the other hand, the specific serum treatment seems to be gradually gaining popularity even in this country. A critical survey of the literature, which has now reached considerable proportions, goes to show that it offers very definite help, but it also suffers from rather rigid drawbacks which are common to all forms of serum treatment. To use the serum in cases which are fundamentally unsuitable is likely to do the patient no good and to bring the preparation into disrepute. It may be well, therefore, to lay down some definite rules, for which the following are suggestions.

(1) The serum is only useful against types I. and II. pneumococcal infections.

(2) There are reasons to believe that the dose given in type II. cases should be twice that recommended for type I.

(3) The dose must be adequate, and herein lies a difficulty, for the standardisation of the serum is difficult and the dose as yet is not agreed upon; but it must be very large.

(4) The serum must be given intravenously and it is possibly a mistake to dilute it with normal saline unless that fluid has been specially prepared to avoid thermal reactions.

(5) The modern concentrated globulin can be given with much greater safety from anaphylactic reactions than the whole serum and a much smaller volume is required.

(6) A syringe containing 1 c.cm. of 1/1000 adrenaline solution should always be at hand and, on the appearance of signs of anaphylaxis, this should be emptied into the muscles or vein.

(7) It is possibly true that serum gives its most brilliant results in bacteræmic cases, but the disappearance of the organisms from the blood stream does occur in a certain proportion of such cases without this artificial aid.

(8) It is probably futile to administer the serum after the end of the third day of the disease, since by then it has become almost impossible to administer the volume which would be required to neutralise the amount of antigen present.

From this it is obvious that two difficulties remain to be overcome: first, adequate dosage; and secondly, early determination of the type of pneumococcus responsible for the lesion. From the clinical, as opposed to the academic, point of view it is only necessary to answer the question: is this a type I. or type II. infection? for if it is not, serum treatment is inapplicable. This problem in some cases can be solved with speed and accuracy; for R. R. Armstrong, utilising the Neufeld phenomenon, has shown that pneumococci in the sputum, when mixed with homologous antiserum, undergo a marked swelling of their capsule which can be recognised under the microscope, and F. C. O. Valentine has further shown that this swelling can be demonstrated by suitable staining. In this way, provided sputum containing pneumococci can be obtained, a type diagnosis can be made in half an hour. The same may sometimes be done with a generous posterior pharyngeal swab, even in the absence of sputum, and this procedure offers an enormous saving of very valuable time when a type diagnosis is urgently needed before a line of treatment can be laid down. For academic inquiry the peritoneal mouse method, which has been used in this series, is still preferable because the group IV. cases require demonstration of the presence of definite pathogenic true pneumococci if the observations are to be of any value.

It is my pleasant duty to offer my warm thanks to all my colleagues at Hope Hospital for their long and unfailing help in the work involved in this series of cases, and particularly to Dr. Lois Stent, who has carried out the highly important typing reactions with such skill and promptitude.

NEW X RAY DEPARTMENTS.—Mr. H. F. Smithson, chairman of the West Yorkshire joint district miners' welfare committee, recently opened a new X ray and therapeutic department at Clayton Hospital, Wakefield. The building and its equipment have cost £16,200, which was granted by the Miners' Welfare Fund.—An enlarged and re-equipped X ray department at Preston Infirmary was recently opened by the mayor of Preston, Alderman Dr. T. H. C. Derham. The work has cost £1625, and the equipment has been provided by the social and recreation clubs of Preston and the district. At the opening ceremony it was stated that the greatest need of the hospital is an enlargement of the maternity department. Each week at least 20 expectant mothers are refused accommodation.

FATAL CASE OF AGRANULOCYTIC ANGINA TREATED WITH NUCLEOTIDE K-96

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Though agranulocytic angina was described by Schultz [1] over a decade ago, the disease only recently appears to have attracted attention in Great Britain, and of the limited number of cases which have been reported to date, in only one does the therapeutic effect of pentose nucleotide, introduced by Jackson and his colleagues [2] in 1931, appear to have been studied. This was the case reported by Bulmer [3] in The Lancet on May 27th; the patient recovered after injections with nucleotide K-96,[*] and as the more important contributions to the subject were summarised, further reference to the literature would be redundant in this report.

Our case was of unusual interest because the patient was continually under the personal observation of one of us (H. H. S.) from the onset of the disease, which extended over a period of five years.

CASE RECORD

H. S., 59 years, married. One child, a son, killed in an accident in 1922.

Family History.—Mother died when patient was born. Father died, aged 43 years, in 1893 from tuberculosis.

Previous History.—Measles when about 12 years old. Went abroad for a trip to New Zealand twice, first in 1894, and later in 1896, returning in 1898. No illnesses there. Residence abroad subsequently: in South Africa, 1901–1905; Jamaica, 1911–1919, with trips home (with husband on leave) 1913, 1915; Hong Kong, 1919–1921. Also transitorily in Japan, Canada, on way to and coming back from Hong Kong. Since 1922 has lived in England. No illnesses at any of those places abroad; no malaria.

Early Attacks.—From January, 1928, has had attacks of fever lasting a few days without other signs or symptoms. The temperature was usually 101°–102° F., rarely higher. On one occasion the fever lasted ten days. These attacks were generally regarded as "influenza," and at first came on at intervals of three months or so, but a similar one in 1931 occurred after a six months' interval.

Attacks during 1930–1932 nearly always followed exertion of some sort; the temperature would rise in the evening with headache and a feeling of chilliness, and after three to four days or so would drop, and recovery would be rapid, but the fever might last for a week. The blood was frequently examined for malaria parasites, invariably with negative results, while the blood picture was one of leucopenia with relative lymphocytosis. Since 1930 the patient had felt the cold severely, and from early autumn to late spring she never seemed to get really warm; two blankets, a rug, and eiderdown were needed till well into the spring, and almost always one, often two, hot-water bottles. In 1932 attacks were frequent, and were nearly always ushered in by a shivery feeling or by actual rigor. With the history of tuberculosis in the father, and considering the fact that these attacks started with shivering and followed closely on exertion, the idea of auto-inoculation from some tuberculous focus was entertained, but no physical signs could be detected anywhere, and X ray revealed nothing except a slight swelling about the mid-œsophagus, "not abnormal." During the summer of 1932 there was a little difficulty in swallowing acid fruits, unassociated with nausea or vomiting, but the patient who was always thin was not losing weight.

Intermediate Attacks.—About mid-July, 1932, another attack of the fever suddenly came on, and on the 24th the patient complained of pain near the anus (she thought "it might be hæmorrhoids"), and on the 28th, after a night of severe pain, a red, brawny swelling appeared in the right ischiorectal fossa. She was taken to the Beckenham Cottage Hospital, and Mr. R. H. Boggon came down to operate. No pus or sinus leading to the rectum was found, only boggy tissue, but a specimen of this tissue examined both microscopically and after inoculation into a guinea-pig was negative for tuberculosis. The incision sloughed considerably and showed little tendency to heal. On July 31st there was acute pain in the midsternal region, much aggravated on attempting to take food or even milk. An ulcer of the œsophagus was suspected. Œdema of the left leg occurred suddenly on August 1st. A week later, as the fever remained high (103°–104° F.), the patient was transferred to St. Thomas's Hospital where three blood counts were performed, and blood culture tried in various media with uniformly negative results. On August 11th total leucocytes 2400 per c.mm., and the differential count showed neutrophils 56·5 per cent., lymphocytes 36 per cent., monocytes 7·5 per cent. There was thus a neutropenia of 1356 leucocytes per c.mm., the normal count equalling 4000–7000 neutrophils per c.mm. Subsequent counts showed improvement. On August 19th total leucocytes 4800 per c.mm., and a differential of neutrophils 66 per cent., lymphocytes 31·5 per cent., monocytes 2·5 per cent., the neutropenia of 3168 per c.mm. being only slightly below normal.

The wound subsequently healed very slowly, and healing was incomplete on Sept. 8th when she left hospital, though the temperature had been down for some days.

On Sept. 24th the blood happened to be examined just at the time when the patient complained of feeling cold and looked blue; she went to bed and in half an hour was shivering with a typical attack. At this time the blood count was 1400 leucocytes per c.mm. (Table I.).

Table I.—*Leucocyte Counts in an Intermediate Phase of the Illness*

Date of observation in 1932.	Total leucocytes (per c.mm.).	Neutrophils (per c.mm.).	Differential count (per cent.).		
			Neutrophils.	Lymphocytes.	Monocytes.
Sept. 24th ..	1,400	868	62	36	2
„ 26th ..	4,100	1,394	34	65	1
Oct. 8th ..	3,800	2,090	55	45	0
„ 22nd ..	3,100	1,054	34	63	3
Nov. 7th ..	3,360	1,882	56	42	2
„ 19th ..	3,710	1,774	47	50	3
Dec. 3rd ..	4,400	2,464	56	42	2
„ 17th ..	4,400	2,948	67	32	1
„ 31st ..	3,530	1,659	47	51	2

The temperature rose to 104° F. that day, but came rapidly down, and by the 26th was normal. Another count on the latter day equalled 4100 per c.mm. Blood examinations were made fortnightly, and are incorporated in Table I. There was never a true recovery of the white cells, though the count very slowly improved. No more febrile attacks occurred until Dec. 19th, when a sudden and severe rise of temperature, starting with a rigor, ensued. The temperature rose to 103° F. and, as on one previous occasion in 1928, the attack lasted for ten days; by the 29th the temperature was normal, and the patient remained well, but felt the cold, and was easily tired. It was at the onset of this attack that the œdema of the left leg disappeared, passing off completely in about 48 hours.

Final Attack.—On Jan. 10th, 1933, another similar attack began, but on the 11th she complained of sore-throat, and the right side of the fauces showed a nasty, angry-looking ulcer extending from the right side of the uvula to the tonsil; this made swallowing difficult, and a spray of Phenolaine had to be used before any milk could be taken. Two days later this had improved, but the other side now became involved and an ulcer of ashy, almost gangrenous appearance, spread from the uvula over both sides, affecting the anterior pillars of the fauces. On the 14th the temperature was 104° F.; there was a little delirium and frequency of micturition. On the 15th temperature remained all day about 104° F., so in the evening she was brought in an ambulance to the Hospital for Tropical Diseases. On admission the temperature was 104·8° F. For the subsequent course the accompanying Chart and data presented in Table II. concerning the leucocyte counts should be consulted.

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[*] Nucleotide K-96 is a mixture of sodium salts of pentose nucleotides prepared, for intramuscular and intravenous injection, by Smith, Kline and French Laboratories, Philadelphia, under the direction of the Committee on Nucleotide Therapy of the Harvard Medical School.

Laboratory Investigations.—The results of various examinations on Jan. 15th and 16th were as follows: Urine showed a specific gravity, 1018, contained albumin (+), a trace of acetone, a few leucocytes, epithelial cells, and granular casts. Urea, 3·4 per cent. The fæces were negative for ova and protozoa. Examination of the blood showed red cells, 4,400,000 per c.mm.; hæmoglobin, 70 per cent.; colour-index, 0·8; average corpuscular diameter, 7·3 microns; leucocytes, 2300 per c.mm.; neutrophils, 1 per cent.; lymphocytes, 94 per cent.; monocytes, 5 per cent.; blood-urea, 55 mg. per 100 c.cm.; cholesterol, 128 mg. per 100 c.cm.; plasma CO_2, 52 vols. per 100 c.cm.; van den Bergh, direct reaction negative; indirect positive (1·5 units). The serum on this and subsequent occasions presented a peculiar pale green tint, the pigment responsible giving no spectrum and being soluble in alcohol, but only slightly if at all soluble in ether; probably it was biliverdin, but sufficient serum was not available for more complete investigation.

TABLE II.—*Leucocyte Counts in the Fatal Relapse with Ulcerative Angina*

Date of observation in January, 1933.	Nucleotide K-96 (c.cm.)	Total leucocytes (per c.mm.)	Neutrophils (per c.mm.)	Differential count (per cent.).		
				Neutrophils.	Lymphocytes.	Monocytes.
16th ..	10	2,300	23	1	94	5
17th ..	20	2,000	60	3	92	5
18th ..	20	1,200	24	2	92	6
19th ..	20	1,100	11	1	94	5
20th ..	20	1,100	22	2	93	5
21st ..	10	560	11·2	2	85	13
22nd ..	10	—	—	—	—	—
23rd ..	18	750	7·5	1	96	3
24th ..	0	525	21	4	86	10

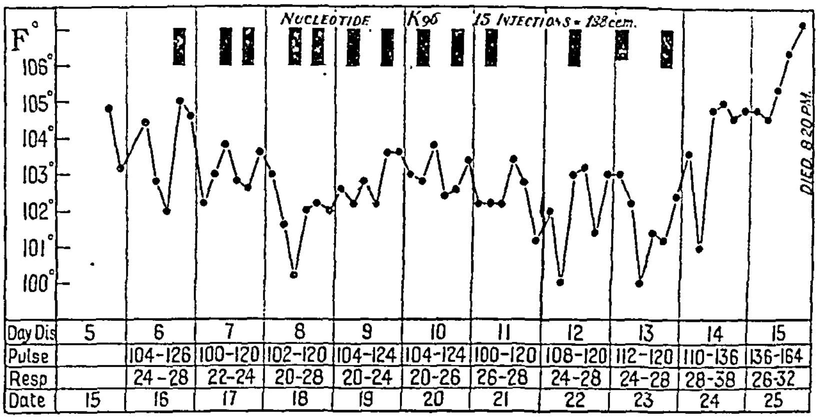
Treatment.—The injection of nucleotide K-96 was commenced on Jan. 16th, 10 c.cm. being given intramuscularly. Injections were subsequently continued as detailed in Table II., two intramuscular injections being given daily on most occasions. On the 23rd the first injection was administered intravenously following an injection of 5 per cent. glucose, but owing to the rapid development of dyspnœa the injection had to be discontinued when 8 c.cm. had been given. Atropine was frequently given before injections to minimise the reaction.

Progress Notes.—On Jan. 16th, 1933, the temperature reached 105° F.; vomiting occurred, the tongue was dry, red, and coated, and the tonsils congested and ulcerated, but physical examination revealed no other abnormality. Blood pressure S/D, 118/80. Dr. L. J. Witts saw the case in consultation, and confirmed the diagnosis of agranulocytic angina.

Jan. 17th: nausea, retching, and headache were present, and blood culture was negative on the following day.

Jan. 19th: the patient was drowsy, and bouts of sighing respiration were noted. At times the respiration was periodic in type; at other times Cheyne-Stokes' respirations occurred. Atropine and camphor were injected. The urine contained albumin (0·025 per cent.), urobilin, leucocytes, epithelial cells, and some granular casts. The blood-urea, 48 mg. per 100 c.cm., and the plasma CO_2, 61 vols. per 100 c.cm. The van den Bergh showed a negative direct, and a positive indirect (2·0 units).

Jan. 20th: anal pain was present. The red blood-cells were 4,200,000 per c.mm.; hæmoglobin, 70 per cent.; colour-index, 0·8. Next day the throat was still sore and spasms of retching occurred.



Temperature chart in case of agranulocytic angina treated with nucleotide K-96.

Jan. 22nd: the tongue was red, furred, and dry; râles were present at the right base, and there was some œdema of the feet; the patient was semi-comatose, breathing was more laboured, and there was a mucous rattle in the throat. Camphor was injected.

Jan. 23rd: the red blood-cells were 3,780,000; hæmoglobin, 70 per cent.; colour-index, 0·9; average diameter of corpuscle, 7·5 microns; blood-urea, 58 mg.; van den Bergh, direct negative, indirect, 1·0 unit; plasma CO_2, 58·6 vols. Urine contained albumin, urobilin, some leucocytes, red cells, and granular casts. Clinically breathing was laboured, and the respirations equalled 28 per minute. The blood pressure S/D, 118/75. Peri-anal, serpiginous ulceration was noted, unattended by inflammatory reaction. Micturition frequent, spasmodic, and accompanied by considerable local pain (probably from the local ulceration).

Jan. 24th: the patient was drowsy, the temperature was high (104° F.), and the sphincters incontinent. Injections of nucleotide were finally suspended, and on Jan. 25th cardiac stimulants and morphia were given. The patient became comatose with hyperpyrexia (107·2° F.), and died at 8.20 P.M.

SUMMARY

Clinical.—The outstanding clinical feature in this case is its chronicity, and the long series of self-limited febrile attacks characterised by leucopenia and relative lymphocytosis without localising features. An ischiorectal swelling in July, 1932, unassociated with pus formation, was the first of these; 18 days later a neutropenia of 1356 cells per c.mm. was present. These findings first suggested agranulocytosis as a diagnosis. From September to December, 1932, the neutrophils varied between 868–2948 cells per c.mm., during which period venous thrombosis involving the left leg was present, and latterly dysphagia. In the final attack (January, 1933) the ulcerative angina and peri-anal ulceration associated with profound neutropenia were typical. Death occurred in coma with hyperpyrexia.

Laboratory.—Detailed laboratory investigations were made during the final attack, one very interesting observation not previously mentioned being the pale green colour of the serum. The pigment responsible was readily soluble in alcohol, but only slightly, if at all, soluble in ether, and showed no characteristic spectrum; its probable nature was biliverdin. The bilirubin content of the serum was somewhat increased, varying from 1·0–2·0 van den Bergh units (indirect reaction); the direct reaction was negative; the plasma CO_2 varied from 52–61 vols., and the blood-urea from 48–58 mg. per 100 c.cm. The urinary output was normal, the fluid balance satisfactory, and though the urine did, from time to time, contain abnormal elements, there was no evidence of nitrogenous retention or severe impairment of renal function. It follows that the dyspnœa and periodic breathing noted during the course of the illness were of central toxic origin and unrelated to either renal dysfunction or acidosis. Hæmatological investigation revealed only mild changes in the red cell counts, a striking neutropenia varying from 7·5–60 cells per c.mm., and a complete absence of other granulocytes either eosinophils or basophils. Hæmoculture was negative, a finding in accord with the view that such bacterial infections as do occur are secondary to the neutropenia, and not primarily responsible for the failure of granulopoietic function.

Treatment.—The complete absence of response following nucleotide K-96 injections was a most disappointing feature, and the large number of self-limited febrile attacks manifest by this patient indicates the need for caution in regarding the recovery from agranulocytosis either as permanent or necessarily related to specific drug therapy.

REFERENCES

1. Schultz, W.: Deut. med. Woch., 1922, xlviii., 1495.
2. Jackson, H., Jr., et al.: Folia Hæmat., 1931, xliv., 33.
3. Bulmer, E.: THE LANCET, 1933, i., 1119.

FAT EMBOLISM

TWO FATAL CASES

BY G. NORMAN CLARK, M.B. ABERD.
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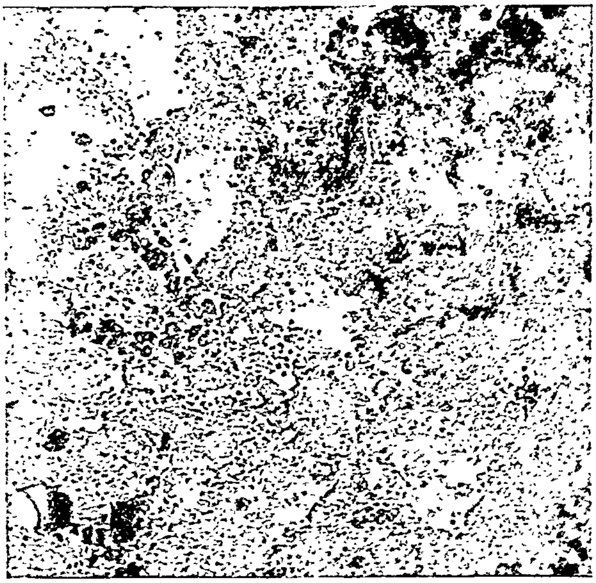
CASE 1.—A. B., a male aged 19, was admitted to the Aberdeen Royal Infirmary on Sept. 3rd, 1932. About 4 P.M. that day he had injured his right leg in a motor-cycle accident. The leg was immobilised by a long external splint before removal by ambulance, a distance of eight miles.

On admission he was suffering from shock but recovered on being put into a warm bed and being given gr. 1/6 morphia (5.45 P.M.). He had not been concussed. There was no evidence of injury to the body elsewhere. Urinary examination was negative; fat was not tested for.

Operation.—At 8 P.M. examination under general ether anæsthesia showed a wound 2 in. long on the outer aspect of the thigh leading down to an oblique fracture of the middle of the femoral shaft. Another wound on the inner aspect of the leg at the junction of the middle and lower thirds overlay a fracture of the tibia. The fibula was fractured in its upper half. Both wounds appeared relatively clean. The wound edges were excised, all deeper damaged tissues removed, and the skin sutured. Skeletal traction pins were passed through the lower end of the femur and the os calcis. The leg was put in a Thomas splint slung on a Balkan beam with weight extension. The total duration of anæsthesia was 75 minutes (℥xii ether being used). Five hundred units anti-tetanic serum were given.

Post-operative course.—Next morning he was conscious and complained of pain in the leg. In the afternoon he gradually lost consciousness; the pulse became weak and rapid (140 per minute); there was a progressive rise in temperature; the pupils were very small and hæmorrhages appeared in the ocular and palpebral conjunctiva. At 2 A.M. on Sept. 5th the temperature was 105° F. He died at 3.40 A.M., 36 hours after the accident.

A *post-mortem examination* showed much bruising of muscle and fat in the neighbourhood of the fractures but no evidence of sepsis. The brain was normal except for one or two minute hæmorrhages in the right thalamus. There were fairly numerous petechial hæmorrhages in the pleura and slight gelatinous exudate in patches over the lower lobes on both sides. Both lungs were very deeply congested and the bases showed early broncho-pneumonia with slight hæmorrhages in places. All the chambers of the heart were dilated. Numerous petechial hæmorrhages were present on the epicardial and endocardial surfaces, especially the latter.



Photomicrograph of lung, showing fat emboli in capillaries, and one blood-vessel completely filled with fat. (From Case 1.)

Microscopically the lungs revealed a very extensive fat embolism. Unfortunately pieces of the other organs were not kept for microscopical examination. (See Figure.)

Clinically this case was one of the cerebral type of fat embolism rather than the pulmonary type.

The outstanding feature of this case was the difficulty in diagnosis. The small pupils and high temperature suggested a pontine hæmorrhage. At the post-mortem death was thought to be due to a septicæmia from the wounds. Only on microscopy of the lungs was a definite conclusion reached, though I had suspected fat embolism some time before death. In the first of the two cases reported by Wright[1] the condition was almost missed even at post-mortem.

CASE 2.—C. D., a male aged 22, suffering from a chronic infective condition of the left hip, was admitted to the City Hospital, Aberdeen.

He was put in abduction and extension from Jan. 3rd to July 19th, 1926. At the end of this period movements of the left knee were very limited and manipulation was advised. On Nov. 31st, under ether anæsthesia, considerable adhesions of both knees and ankles were broken down. The operation was done at 10.30 A.M., only four ounces of ether being administered. Two and a half hours later he became cyanosed; the cardiac condition was fairly good. An hour afterwards the cyanosis was more marked; the pulse was thready and intermittent. He died at 3.40 P.M. that day. The organs removed at the post-mortem showed widespread fat emboli in the capillaries. There was a T-shaped fracture of the patella.

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[1] Wright, R. B.: Ann. of Surg., 1932, xcvi., 75.

Clinically this was a case of the pulmonary type of fat embolism.

There have been many reported cases of fat embolism following orthopædic procedures, the liability to embolism being probably due to the atrophied bones containing more fat than normally. Usually it has followed injuries of, or operations on, the lower extremity.

Diagnosis during life is of importance in that treatment can be tried. Wright[1] states that "fat embolism should be considered in any case where there are grave or unusual symptoms following trauma whether the trauma be fracture, contusion, concussion, intravenous therapy, delivery, or operation"! Warthin[2] in his excellent and most complete communication on the subject gives eight points in the diagnosis :—

1. Injury to bone-marrow or adipose tissue.
2. A cardiac, pulmonary, or cerebral complex or these combined. (Restlessness, stupor, coma, dyspnœa, cough.)
3. Free fat-droplets in sputum: fat containing alveolar cells in sputum.
4. Free fat-droplets in urine.
5. Examination of eye-grounds for evidence of fat in circulating blood.
6. Examination of venous blood for fat-droplets.
7. Increase of temperature, rather than a lowered temperature.
8. Examination of skin for petechial hæmorrhages.

Warthin regards the presence of fat in the sputum as a most important and early sign, fat occurring in the sputum before the urine.

Prophylactic measures have been advocated, such as the routine employment, and the slow removal, of tourniquets after operations on the limbs likely to give rise to embolism, the incision of tense hæmatomata, and even the drainage of blood from the saphenous or femoral vein by cannula on removal of the tourniquet.

Treatments employed for an established fat embolism include the injection of 2 per cent. sodium carbonate (formation of a soluble soap), venesection, injection of large quantities of saline solution subcutaneously or intravenously, drainage of the thoracic duct, the application of a tourniquet and opening up the operation wound.

I have to thank Mr. G. H. Colt for permission to publish the first case and Dr. J. Gray for his report on the post-mortem findings, also my thanks are due to Dr. G. S. Banks for the notes of the second case.

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[2] Warthin, A. S.: Internat. Clinic, 1913, iv., 171.

MEDICAL SOCIETIES

THE ASSOCIATION OF CLINICAL PATHOLOGISTS

THE summer meeting was held in the Pathological Department of Ancoats Hospital, Manchester, with Dr. ARNOLD RENSHAW in the chair, when a discussion was held on

The Anæmias subject

Dr. A. F. S. SLADDEN and Dr. AGNES BODOANO (Swansea) communicated observations on the

LEUCOCYTE COUNT IN PERNICIOUS ANÆMIA

They said that the typical pernicious anæmia patient has either a leucopenia or at least a count near the lower end of the normal range; further, the polymorph cells tend to form a relatively lower proportion of all leucocytes than in normal blood. Cooke and Ponder had shown that the blood in pernicious anæmia had a relative excess of multilobed polynuclears, so that the weighted mean of lobe content per cell is increased. Observations based on 220 counts made on 160 patients by Dr. Sladden and Dr. Bodoano did not warrant the assumption that the raised mean lobe count is peculiar to pernicious anæmia and permanent; they indicated, however, that such a count is very common in pernicious anæmia and may thus help in early diagnosis, though it may also occur in microcytic anæmia. When an intercurrent infection occurs the excess of multilobed polynuclears is masked by the outpouring of immature cells. The mean value in polymorph lobes was found to be fairly constant for any one patient unless infection intervenes; a raised mean might therefore be found even during a remission of the disease, and this fact was occasionally of value in the diagnosis of what might be termed latent pernicious anæmia. The other aspect of leucocytes in pernicious anæmia to which they desired to draw attention was the characteristic leucopenia. The data examined did not warrant definite conclusions, but suggested the possibility of drawing a distinction between the course of the polymorph curve and the lymphocyte curve during the progress of a pernicious anæmia which might have value not only for prognosis and the control of treatment, but possibly also as a method of analysing the problems of cell-genesis in the bone-marrow or elsewhere. Dr. Sladden and Dr. Bodoano found the absolute count of lymphocytes to show a rise preceding the rise in the red cells as the result of liver treatment, and a fall preceding the fall of the red cells in relapse.

Dr. C. J. YOUNG (Bradford) read a paper on the Polymorphs in Pernicious Anæmia. From observations on the lobation of the polymorphs he concluded that there is both a diminished production of polymorphs and retardation in their removal from the circulation. The number of lobes per 100 cells was raised, attaining a figure in the neighbourhood of 317. This was characteristic of pernicious anæmia but the same state of affairs might be met with after hæmorrhage and after infection. Only by means of absolute lobe counts could it be ascertained whether it was due to diminished production or retarded removal of polymorphs from the circulation. In sepsis occurring in the course of pernicious anæmia, the output of polymorphs of Arneth classes I. and II. might increase and the mean lobe count fall as low as 2·5. Dr. Young attributed the low polymorph count in pernicious anæmia to the replacement of the myeloblastic by erythroblastic marrow.

Dr. G. W. GOODHART (London) asked whether it was justifiable to regard the degree of lobation of the polymorphs as an index of their age.—Dr. C. PRICE-JONES (London) asked what was meant by the age of polymorphs. He suggested that the degree of lobation of the polymorphs was an expression of the amount of work they had done; there being few polymorphs in the blood in pernicious anæmia those present would have more work to do and would therefore acquire more lobes. Dr. Price-Jones commented on the difficulty of avoiding errors due to the personal equation in making lobe counts.—Dr. SLADDEN replied that once they had experience of the technique, different workers arrived at closely similar figures on the same preparation.—Dr. YOUNG pointed out that if degree of lobation is an expression of work, then there should be a marked shift to the right in conditions of leucopenia such as agranulocytosis, which is not the case.

Dr. N. H. FAIRLEY (London) communicated some

OBSERVATIONS ON SPRUE

He pointed out that Ashford's theory of intestinal moniliasis had still many adherents and had done much to cloud the issue. The clinical picture presented febrile morning diarrhœa with pale, bulky, gaseous, acid stools ; there was loss of weight, asthenia, sore tongue, a megalocytic anæmia, and sometimes tetany. The disease might occur in natives as well as in white men in the tropics and subtropics. Attention was usually drawn to the condition before the anæmia had fallen lower than 2,500,000 to 3,000,000 red cells per c.mm. The Price-Jones curve was positive in 34 out of 44 cases observed. Achlorhydria was present in many cases but the gastric hydrochloric acid returned after successful treatment. Observations on the blood-sugar and serum calcium showed a deficiency and the basis of the disease was deficient absorption from the alimentary tract; this affected the anti-anæmic factor of Castle and thus accounted for the anæmia. Treatment was by substitution of the anti-anæmic factor and by diet ; the diet should be high in protein and low in carbohydrates and fats.

Dr. G. J. LANGLEY (Manchester) spoke with regret of the disappearance of the strawberry treatment and commented on the difficulty of drawing conclusions as to the disease from cases observed under non-tropical conditions.—Dr. J. G. GREENFIELD (London) drew attention to the fact that in spite of the resemblance of the anæmia of sprue to that of the pernicious type, subacute degeneration of the cord was not seen in sprue.—In answer to Dr. JANET VAUGHAN, Dr. FAIRLEY stated that he had never heard of osteomalacia occurring as a result of sprue even of long-standing.—In answer to Dr. GOODHART, Dr. FAIRLEY stated that 20 per cent. of cases relapsed, but that this occurred mainly in patients living under adverse conditions. Relapse could be avoided by suitable diet low in fats and carbohydrate ; it was advisable to persist with treatment with liver for six months after the blood picture had been restored to normal; once the gastric hydrochloric acid had returned to normal cases rarely relapsed.

OTHER COMMUNICATIONS

Dr. J. G. GREENFIELD and Dr. ELIZABETH O'FLYNN (London) communicated observations on the Relation of Pernicious Anæmia to Subacute Combined Degeneration of the Cord (see p. 62), and Dr. JANET VAUGHAN (London) read a paper on the Treatment of the Anæmias (see p. 63).

Dr. PRICE-JONES referred to a case of aplastic anæmia in which there had been temporary improvement under copper therapy.

Dr. S. C. DYKE (Wolverhampton), as hon. secretary of the association, reported the results of a questionnaire circulated to members on the diagnosis and treatment of pernicious anæmia. He stated that there was a general consensus of opinion that a firm diagnosis could not be made without employment of all the following procedures : estimation of hæmoglobin, enumeration of red cells, examination of stained film of blood, fractional test-meal, van den Bergh reaction of serum, estimation by some means of the mean diameter of the red cells. A positive van den Bergh reaction had been found in the vast majority of cases and except in very few instances was of the indirect type. There was general agreement that hydrochloric acid therapy was useless in improving the blood picture, but it was of service in combating gastro-alimentary symptoms ; iron was found to be of no avail in the early stages of treatment when the colour-index was high, but it was of value when the red cells had been restored to something approaching a normal level, at which time the colour-index tended to fall.

Dr. F. B. SMITH (Preston) demonstrated the halometric device of Merlyn-Price and communicated observations on 85 cases of pernicious anæmia. Contrary to what is generally stated, he found the condition to be more common in women than in men ; he also found that the megalocytosis did not disappear until the hæmoglobin had reached over 70 per cent.

Dr. DYKE communicated the results of an attempt to assay the value of preparation of liver for parenteral injection in the treatment of pernicious anæmia by means of the reticulocyte response (see p. 59).

In the subsequent discussion various speakers drew attention to the waste of money and material in the prescription of preparations of the anti-anæmic factor to unsuitable cases and in the use of inefficient preparations.

Dr. DYKE pointed out that the waste is not only of money and material, but also of human health and life, and stressed the fact that it is impossible to treat properly any case of pernicious anæmia without frequent examination of the blood.—Dr. JANET VAUGHAN stated that the same applied to cases of microcytic anæmia on iron therapy. Various members drew attention to the need for concerted action to put into effect the recent advances in the treatment of the anæmias.

The following resolution embodying the sense of the meeting was proposed by Dr. GREENFIELD :—

> "That this association is of the opinion that the failure to provide laboratory facilities for patients under the National Health Insurance Acts, suffering from or suspected to suffer from anæmia, is responsible for much wastage both of material and of human efficiency and life, and considers that such laboratory service should be made available in recognised centres both for initial differential diagnosis and for the periodical examinations necessary to assure the maintenance of a sound state of health."

The resolution was seconded by Dr. GOODMAN PLATTS (York) and passed unanimously.

LEICESTER ROYAL INFIRMARY.—According to the report for 1932, 6902 in-patients were admitted, which is a small increase. Their average stay was 19·86 days, and the average cost per occupied bed was £152. Deaths within 48 hours of admission numbered 207. There were 14,000 new out-patients, but although this was a fall of 471, there were about 900 more attendances. There were 18,978 casualties, an increase of 1700 ; 338 traffic accidents were admitted to the wards, of which half were motor-car casualties; accidents with motor-cycles came next with 115. These patients spent 6906 days in hospital and cost £2886 ; 55 of them died, 17 from injuries received in motor-car accidents.

REVIEWS AND NOTICES OF BOOKS

Oral Spirochætes and Related Organisms in Fuso-spirochætal Disease

By David T. Smith, A.B., M.D., Associate Professor of Medicine, Duke University, School of Medicine, Durham, N.C. London: Baillière, Tindall and Cox. Pp. 243. 26*s*.

Owing to the extreme difficulty of obtaining them in pure culture the oral spirochætes have always been a refractory group of parasites to study, and Dr. D. T. Smith has attempted a big task in seeking to bring together into a readable form practically all that is known about them. The fact that to his monograph he appends a bibliography of 822 references indicates that he has not skimped his work. The conclusion he has reached is that there is no evidence, either clinical or experimental, that oral spirochætes alone can produce disease in man. He would regard them rather as members of a whole group of organisms, which includes spirochætes, fusiform bacilli, vibrios, and cocci, situated in the tonsils and about the teeth in a strategic position to initiate local lesions in the buccal cavity and the respiratory tract. The various diseases in which these organisms are found exhibit certain common characters—viz., necrosis and destruction of tissue, pseudo-membrane formation when the lesion is on a surface, and fœtid odour. Side by side with spirochætes there practically always exist fusiform bacilli, and the same confusion which has obscured the nomenclature of the spirochætes has also complicated the classification of the fusiform bacilli. Dr. Smith makes a tentative division into three types, based upon the assumption, for which there is considerable evidence, that the fusiform bacilli are simply different forms of spirochæte. Type I. is probably a variant of *T. buccale*, Type II. of *T. vincenti*, and Type III. of *T. microdentium*. It is inevitable, in view of the confusion which prevails, that much controversy should have taken place as to whether this development from fusiform bacilli into spirochætes and spirochætes into fusiform bacilli may take place in cultures as well as in lesions. Dr. Smith sides with G. Sanarelli in the view that fusiform bacilli do indeed change into certain types of spirochæte, and vice versa. The relationship of the spirilla, vibrios, and various other mouth organisms found in association with these spirochætes and fusiform bacilli is by no means clear, and Dr. Smith is content to reserve judgment.

Amongst the diseases in which this large class of organisms is found the author includes fuso-spirochætal angina, cancrum oris, necrotic gingivitis (trench mouth), pyorrhœa alveolaris, bronchiectasis, pulmonary abscess and gangrene, hospital gangrene, and certain cutaneous lesions of the genitalia. The organisms may also be found in the conjunctiva and the ear, and in the intestine. Indeed, they are so extensive in their distribution and have such a predilection for the buccal cavity that it is small wonder that clinicians are prone to seek from pathologists opinions on their real significance.

Especially interesting are the chapters on bronchopulmonary spirochætosis and fuso-spirochætal pulmonary abscess and gangrene. Dr. Smith considers that the former disease, as it occurs in temperate climates, ranks next in frequency to tuberculosis, and is the most common of the chronic non-tuberculous infections of the lungs. He regards most cases of lung abscess, whether operative or non-operative, as caused by aspiration of infected material from the mouth, which explains the prevalence of the spirochætal group of organisms in the bacterial findings, and he recognises no sharp line pathologically between pulmonary abscess and chronic bronchiectasis. With regard to laboratory diagnosis he states that these organisms when infecting the lung do not give a positive Wassermann or a positive Kahn precipitin test, and that he has never seen spirochætes in the absence of fusiform bacilli. He emphasises for the benefit of inexperienced technicians the fact that the small fusiform bacillus is the type most commonly found in abscess and in bronchiectasis rather than the large fusiform bacillus which predominates in fuso-spirochætal angina. If attention is focused on the large fusiform bacillus the small fusiform types may readily be overlooked. His preference for the dark field apparatus over staining reactions for purposes of investigation will be shared by most observers.

This useful book does much to clear up the confusion and brings into harmony many isolated facts.

The Meaning of Animal Colour and Adornment

By Major R. W. G. Hingston, *M.C.*, M.B. London: Edward Arnold and Co. 1933. Pp. 411. 18*s*.

Major Hingston, a well-known writer among field naturalists, has given much pains to the setting out of a novel biological theory in this challenging book. On the title page the work is described as "a new explanation of the colours, adornments, and courtships of animals, their songs, moults, extravagant weapons, the differences between their sexes, the manner of formation of their geographical varieties, and other allied problems." The message of the book, the "new explanation," is briefly that animal colour and the tufts and plumes usually assumed to be sexual characteristics, as well as many of the extravagant shapes of antlers and tusks, have as their primary meaning a menace to foes. And in proof of this theory the author brings together examples founded on the appearance or behaviour of all sorts of animals in varying climes and circumstances, man being also submitted to the scrutiny. The wide range of information and the great industry with which the researches, described in the book, have been conducted, will win general commendation even where the writer is unable to make converts to his views.

That the bright colours of the appendages, manes, crests, and frills borne by so many animals, are not ornaments but weapons to be employed for the intimidation of enemies, is an assumption directly opposed to the accepted belief that animal coloration is largely protective—that, in other words, the external appearance of the animal should be inconspicuous in its environment if the animal is to escape attack. Major Hingston recognises the dilemma to which his explanation of pronounced shapes, tints, or markings among animals leads. The characteristics that are to ward off danger ought clearly to be immediately open to perception, while characteristics which are to assist in the concealment of the animal would have a very different quality. How can they act in both ways? To remove this difficulty from our minds many pages of the book are devoted, the solutions offered for the problem being very ingenious in numerous instances. An example of the reasoning employed is furnished at the beginning of the book when considering the case of the lion. Regarding the male, save perhaps where maternal instincts are concerned, as the protector, and the female as the protected, it is pointed out that, while the main colour scheme of the lion is suited to protect him from observation in his usual habitats, when he does not desire to be seen, when he takes the open in anger, the bristling mane, the rotated ears, and the elevated tail-tuft combine to produce a fierce colour scheme. A similar use of pigmented areas in many dogs and wolves, skunks and badgers is described, among mammals, and then the animal world is submitted seriatim to similar testings.

The chapters relating to birds contain some elaborate notes on the meaning of song, the author holding that whatever be the intention of bright colours that same purpose must apply to song; thus, in contradiction of the usual belief, he decides that, just as bright colours form a fighting attire, the songs of birds are a trumpet of war. The hues of insects, like those of birds, are held to be a form of war-paint. After the publication of Darwin's " Origin of Species " it was seen at once that insects would form a group extremely convenient for the illustration of biological problems, whether associated with heredity or behaviour, for they were easy to observe, often abundant, conspicuous, and formed an economical material for experimentation. Major Hingston records much observation on the lepidoptera, where some of his general statements, on which deductions are founded, would not be accepted without controversy, as many exceptions to the rules could be cited. The notes on caterpillars are interesting. The arrangement of colouring, tufts, and spines, as well as the extraordinary attitudes assumed by these embryos, undoubtedly serve as protective weapons, and such only, since caterpillars cannot be concerned in sex rivalry. But though the purpose of the external embellishments of the caterpillar is single, they work in two ways. First, many of its most striking or gay markings actually help to blend it with its food plant, and secondly, the threatening attitudes are not permanent but struck only in the presence of danger. Caterpillars, in fact, supply an example of the double value of conspicuous traits.

The book is full of interesting observations, and illustrated, often very happily, by the author.

Colonic Irrigation

By W. Kerr Russell, M.D., B.S., Medical Officer in Charge, Light and Electrical Departments, Miller General Hospital. Edinburgh: E. and S. Livingstone. Pp. 191. 10*s.* 6*d.*

The origin of colonic irrigation is lost in the dimness of the past, though, according to Dr. Kerr Russell, prescriptions for enemas have frequently been found on Babylonian and Assyrian tablets, and a chapter on the history of the clyster brings to light many strange uses for this method of treatment. Dr. Kerr Russell briefly reviews the anatomy and physiology of the large bowel and the flora and parasites of the intestines, and details the various types of apparatus suggested for colonic irrigation. Our own view is that complicated apparatus is to be deprecated, for it defeats its own purpose. If colonic lavage is to take the place of the purgative pill, and there is much to be said in its favour, the procedure must be made as simple as possible, so that it can be carried out by the patient in his own home without too much disturbance of the domestic routine. The case for the use of large amounts of fluid is no more convincing. When an opaque enema of less than a couple of pints is allowed to run in quietly at low pressure, one can see the cæcum filled and emptied if certain changes of position are made. When a large quantity of fluid is injected at high pressure it is doubtful whether much of the fluid ever gets past the lower part of the sigmoid, if as far. If the colon has to be very thoroughly washed, irrigation through an appendicostomy would seem to be the most reliable method. Dr. Kerr Russell makes short work of the dreaded "enema rash"; his happy experience that "the administration of a second injection effectively precludes the development of such a rash" is not the general one.

The book concludes with a list of the medicaments which can be used in colonic lavage, a hint of its dangers, and a list of the conditions in which it has proved beneficial. Many useful lessons are to be learned from Dr. Kerr Russell's book, which will repay study, even if the reader does not agree with all the conclusions. It is well illustrated, has a good index, and is clearly printed.

The Law relating to the Blind

By P. F. Skottowe, LL.B., Barrister-at-Law. London: Butterworth and Co. 1933. Pp. 157. 7*s.* 6*d.*

Mr. Skottowe's little book on the Law relating to the Blind is carefully compiled and will be found useful by those who have occasion to consult it. The census of 1931 showed that there were over 60,000 blind persons in England and Wales. For their welfare Parliament has gradually acknowledged a larger public responsibility, mainly discharged through local authorities and voluntary agencies. Thus there is now considerable legislation in the form of statutes or statutory rules covering education and training, charities, and miscellaneous matters such as voting facilities, dog licence exemption, special postal rates for literature, and old age pensions at 50. Captain Ian Fraser writes a preface to this book, and his Blind Voters Bill, which has been passed by the House of Commons, is printed in an appendix.

The Anatomy of the Eye and Orbit

Including the Central Connexions, Development, and Comparative Anatomy of the Visual Apparatus. By Eugene Wolff, M.B., B.S. Lond., F.R.C.S. Eng., Ophthalmic Surgeon, Royal Northern Hospital; Pathologist and Lecturer on Anatomy to the Royal Westminster Ophthalmic Hospital. London: H. K. Lewis and Co., Ltd. 1933. Pp. 310. 31*s.* 6*d.*

The subject matter of this book is based mainly on lectures and demonstrations given at University College and at the Royal Westminster Ophthalmic Hospital. Most of the illustrations of dissections are taken from preparations made by Mr. Wolff himself, and the diagrams also are original. The first three chapters on the orbit, the eyeball, and its appendages are strengthened by notes on the practical applications of anatomical detail to operative technique. Recent advances such as Duke-Elder's work on the structure of the vitreous are included. In the description of the vascular supply of the iris both the vascular circles used to be termed "arterial." Thomson Henderson maintained that they were both venous. Mr. Wolff calls the outer one arterial and the inner one arterio-venous. The canal of Schlemm is termed "sinus venosus scleræ." The structures in the ciliary body which Treacher Collins discovered 40 years ago and believed to be glands are described without endorsing this view of their purpose. The functions of the different portions of the ciliary muscle constitute a physiological rather than an anatomical problem, but it is disappointing to find no help here in differentiating them. Appearances seen under the slit-lamp hardly come within the scope of this work, but they are indicated nevertheless in a short chapter. The extrinsic muscles of the eye, the nerves and vessels, and the optic nerve itself with its central connexions in the brain are very fully discussed. Some of the dissections showing the course and relations of the nerves are beautiful. The two final chapters on the development of the eyes and on comparative anatomy open up a wide field. The printing and general get up of the book leave nothing to be desired. We commend it as a valuable acquisition for ophthalmic surgeons.

Questions cliniques d'actualité

3e Série. By Many Authors. Paris: Masson et Cie. Pp. 302. Fr.45.

THIS collection of lectures delivered at the Charité Hospital in Paris, under the direction of Prof. Sergent, includes discourses on some 20 subjects by well-known authorities. In general the addresses are of the post-graduate type, but a few of them are of more interest to the specialist than to the practitioner. F. Bordet gives a useful account of the association of influenza and tuberculosis; R. Boulin reviews the use of insulin in diabetes; and P. Jacquet contributes an admirable lecture on chronic appendicitis. Of more specialised interest are the chapters on pulmonary syphilis (J. Dechaume), carcinoma of the suprarenals (L. Langeron), and hypertension of congenital syphilitic origin (J. Genevrier). N. Fiessinger gives a particularly interesting study of some of the more obscure forms of amœbic abscess of the liver, and the brilliant results obtained by the use of emetine in treatment. Among the less practical addresses is the general review of cancer research by G. Roussy. At the present time when many teaching hospitals in this country are organising a short post-graduate course every year the method of approach and choice of subject matter by French physicians and surgeons is noteworthy; while at the same time the clear style and authority of the contributors makes this an important expression of present-day French teaching. Such a collection of post-graduate lectures delivered at a famous hospital has a particular interest to those in other countries, and Prof. Sergent and the publishers are to be congratulated on making available such a volume as this. It is an example which on occasion might perhaps with advantage be followed in this country.

The Sanitary Inspector's Handbook

A Manual for Sanitary Inspectors and other Executive Public Health Officers. By HENRY H. CLAY, F.R.San.I. London: H. K. Lewis and Co., Ltd. 1933. Pp. 406. 15s.

THE mansion of preventive medicine has been enlarged during the last 30 years to include so many varying activities that the medical officer of health may forget that correct sanitation—using the term in its widest sense—is still the foundation on which it must be built. In rural areas indeed sanitation remains one of the main activities of the public health service, and Mr. Clay's excellent book will enable the medical officer of health to keep abreast of the latest developments in sanitation and to meet his inspectors on equal terms. Mr. Clay's experience as a lecturer at the London School of Hygiene and Tropical Medicine and at the Royal Sanitary Institute has enabled him to fill the needs of students reading for the D.P.H. and, as Prof. W. W. Jameson says in his introduction, the correlation of the legal and practical aspects of sanitation is admirably arranged. The illustrations could hardly be bettered, and the sections on nuisances, the "one pipe system," and disinfection are worthy of special mention. Where Acts are quoted at some length verbatim, as under the various Milk and Food Regulations, it would have been helpful to emphasise important points and clauses in heavy type; and an occasional indication of the extent to which Adoptive Acts and By-laws are in force would have been of interest. We have surely not yet reached the point in heating when a coal fire is not even worthy of mention; nor is the low-temperature panel system of radiation quite as perfect as heating engineers seem to think it. One or two minor slips should be corrected in the next edition. The index contains no mention of the Knapen system of wall ventilation referred to in the text, nor of "grease-traps." The useful glossary of building terms might well include definitions of "reveal," "hardcore," "sleeper walls," and "invert," all referred to in the text.

Minor Maladies and their Treatment

Sixth edition. By LEONARD WILLIAMS, M.D. London: Baillière, Tindall and Cox. 1933. Pp. 420. 10*s.* 6*d.*

WE are glad to think that examination papers are not nowadays concerned only with the rarities of medicine, so that the student cannot afford to ignore minor maladies. The more interest he has taken in such ubiquitous and often intractable disorders as "indigestion," constipation, colds, rheumatism, headache, the more he will welcome useful practical advice in "Minor Maladies" born of experience. In this edition a new chapter on salient symptoms has taken the place of one on goutiness. It includes as "some of the most outstanding symptoms of the gouty diathesis" albuminuria, glycosuria, "blood pressure," obesity, boils, warts, baldness, acne, heat-stroke and sunburn, insomnia and sneezing! The chapter on minor glandular insufficiencies contains a number of generalisations, such as "unsatisfactory babies are almost invariably the subjects of thyroid deficiency." Dr. Williams blames such deficiency for most cases of enuresis, as well as for cases of night terrors, adenoids, enlarged tonsils, and enlarged lymphatic glands in children. Generalisations must be dogmatic; they are apt to be too dogmatic. Chapter 8 on advancing years is entertaining and full of illuminating quotations. The author's views upon tobacco are perhaps deliberately left obscure; the recommendation that everyone over 55 years of age should stop smoking would probably be taken more seriously if the interdiction was not extended to people of any age, those with supernumerary nipples or with red hair. Dr. Williams seems sometimes to mix the rôle of farceur with that of mentor so effectively that he has deceived himself, and hardly knows when he is deliberately mocking the serious reader and when he is clothing accepted doctrine in an original and striking guise. In all his moods he is entertaining and readable, and no student or practitioner will regret having bought this book.

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undoubtedly welcome any further attempts to determine and standardise the potency of extracts. As Dr. GREENFIELD points out, the question of the relation of the deficiency causing anæmia to the lesions of subacute combined degeneration is another question which requires further study. It is still open to doubt whether all anti-anæmic remedies are equally effective in relieving nervous symptoms. Even approximate information of the therapeutic potency of liver and stomach extracts and of the most reliable methods of their administration, combined with facilities for controlled treatment, should do much to reduce the present unnecessary wastage of life and of scientific material.

SERUM IN PNEUMONIA

As long ago as 1891 G. and F. Klemperer prepared an "antipneumotoxin" by injecting filtered sputum into rabbits. The immune serum they obtained was found to protect a rabbit against subsequent inoculation with pneumococci and was tried in a few cases of pneumonia. By the beginning of this century Foa and Scabia, Jansson (1892), Washbourn (1897), Parr, Biggs, Pane (1897), Tizzoni and Panichi, Römer (1902), and Lambert had independently made efforts to prepare sera from different animals, such as the horse and the ass, immunised against the pneumococcus. Pane's antiserum seems to have undergone the most extensive tests, but the results with all of them were uncertain. Among others Neisser, Marchoux, and Weissbecker attempted to combat pneumonia with the serum of convalescents, but here again the results were doubtful and the treatment of the infection with immune sera remained a tantalising problem for the immunologist. Between 1909 and 1912, however, the pioneer work of Neufeld and Händel laid the foundation of the subsequent American investigation of the different pneumococcal types, whose existence is now well established.

The use of the polyvalent sera hitherto employed now gave place to more accurate attempts to produce immunisation against one or other of types I., II., and III. Most of the first advances in this direction were made at the Rockefeller Institute for Medical Research in New York, where it was soon discovered that an antiserum to type I. strain offered the best prospect of success. The early results were summarised in a monograph on acute lobar pneumonia written from the Institute by Avery, Chickering, Cole, and Dochez in 1917 with a view to placing the knowledge, thus available, at the disposal of army medical officers who were faced with large numbers of susceptible recruits brought together in camps during the winter months. From that time onwards investigations have been almost continuous. The method of preparing the serum, as described in 1917, was by immunisation of horses with a strain of pneumococcus virulent enough to kill a mouse in a dose of 0·000001 c.cm. For purposes of standardisation new means had to be devised because no pneumococcal toxin had been demonstrated and the method used for diphtheria and tetanus antitoxin was therefore inapplicable. The investigators fell back on the plan—followed by Eyre and Washbourn and others many years previously—of using the bacteria themselves instead of their toxin, and ultimately a standard of potency was adopted in which only those sera were selected for therapeutic use which, in doses of 0·2 c.cm., protected mice against 0·1 c.cm. of a standard culture. On this basis a dose varying from 80 to 100 c.cm. was employed for therapeutic use.

Meanwhile attempts were being made to obtain concentrated sera. Huntoon, in 1921, had devised a method of absorbing antibody from antipneumococcus serum with homologous living pneumococci, and recovering the antibody by washing the cocci with weak alkaline saline, and later, in 1925, Felton prepared the concentrated serum which has taken such an important place in modern serum therapy. He precipitated his immune substance from antipneumococcus serum by diluting with water or weak acid solution and redissolving in salt solution. Other concentrated sera have followed, though Felton's has been tried most widely, and sufficient data have been accumulated to encourage immunologists to persevere in the improvement of methods of production. Dr. Cruickshank in the Milroy lectures, lately published in our columns, produced figures for the mortality of cases treated with and without serum in the United States and Great Britain. In type I. a mortality of 17·3 per cent. is given for 547 serum-treated patients as against 31·0 per cent. for 477 untreated; in type II. a mortality of 33·4 per cent. is found in 415 treated as compared with 43·3 per cent. in 367 untreated. But, as Cruickshank points out, too much stress must not be laid on mortality-rates. Amelioration of symptoms and shortening of the period of infection have also to be considered, and it is noteworthy that his temperature charts of a consecutive series of serum-treated patients show a definite shortening of the infection in type I. and a less definite in type II. cases. Broadly speaking, future progress is impeded by three sets of obstacles—clinical, commercial, and immunological. On the clinical side it is often difficult to get cases early enough for serum treatment, and it is not yet generally appreciated that time is as important here as in many surgical emergencies. There are also anaphylactic difficulties to be overcome and the lesser difficulties attendant upon all intravenous medication, whilst useful immune sera are only available for types I. and II. pneumococcus infections. Added to these drawbacks is the necessity for bacteriological typing which requires time and skill, and sputum is not always available for the purpose. To use type I. serum, for instance, in a type III. or group IV. infection is tantamount to administering normal horse serum, and nothing more; and as Dr. G. L. LANGLEY points out on another page, to give serum where it is fundamentally unsuitable will do the patient no good and will bring the preparation into disrepute. On the commercial side these sera are costly to produce, and the expense works out at several pounds per patient over a series of cases—no small item for a hospital in these hard times.

There are many problems too on the immunologist's side. In an article on p. 91 of this issue, Mr. Percival Hartley, D.Sc., and his medical collaborators emphasise the important point that some of the failures of the past have been due to the lack of a common standard of reference with which to compare the various serum preparations used clinically, and until one standard serum is available in terms of which all others may be assayed, the labelling of preparations in terms of arbitrary "units" may be definitely misleading. Moreover it has long been recognised that a serum which has a powerful protective action in mice and other laboratory animals may have less action, relatively, in clinical practice, and there is no analogy between the antitoxic serum of diphtheria and the antibacterial serum of pneumonia. The first section of the report describes how Dr. Hartley and Dr. Wilson Smith, at the National Institute for Medical Research, prepared a dry standard antipneumococcus serum, type I. This dry preparation can be "reconstructed" in the form of a glycerol solution and issued to laboratories as a standard control. In this way it was possible for Dr. G. F. Petrie and Dr. W. T. J. Morgan at the Lister Institute and Dr. H. J. Parish and Dr. J. W. Trevan at the Wellcome Physiological Research Laboratories to make control tests as to the relationship between the "reconstructed" serum and the pooled liquid serum F. 146 (kindly given by Dr. Lloyd F. Felton of the Harvard University Medical School) and to compare their results with those obtained by the issuing laboratory at the National Institute of Medical Research. The results of these comparative tests show a definite measure of agreement. It is proposed therefore that, pending the definition of a unit by international arrangement, the unit originally proposed by Dr. Felton should be provisionally adopted as the basis of measurement for antipneumococcus serum type I. Such a unit is equivalent to 0·0886 mg. of the dry standard preparation, and all samples of antipneumococcus serum type I. of unknown potency can in the future be assayed in terms of Dr. Felton's original liquid antiserum. The advantages of this great step forward are obvious, and will go far to overcome the difficulty of estimating adequate dosage to which Dr. Langley draws attention (see p. 70). In future it will be possible more accurately to compare one serum with another and one of the bugbears of the serotherapy of pneumonia will now, it is hoped, be banished.

ANNOTATIONS

THE BRISTOL MEDICAL SCHOOL

THE Bristol Medical School, now merged in the medical faculty of the University of Bristol, was celebrating its centenary at the end of last week, and the opportunity has been taken to issue an informing history of the school, written by Dr. George Parker. The school had its origin in the founding of the General Hospital in 1832 at a time of great expansion in Bristol, and it developed from a group of pupils, who, serving in rotation as resident dressers, were in a sense apprenticed to the medical staff of the hospital. These formed a school round the new General Hospital. There was in existence already a medical school in the city which had obtained official recognition from the Royal College of Surgeons of England; the Bristol Infirmary was attended steadily by dressers; and there were also lecturers in the city, whose certificates to the competence of students were accepted by examiners both at the College of Surgeons and at the London Society of Apothecaries. In 1833 a combination of the various groups was effected and from that date onwards Bristol has possessed a strong medical school. Now Dr. Parker tells the story of the development of this school in detail, describing in a very readable way its affiliation with Bristol College, its acquisition of buildings, its good fortune in attracting great teachers, and its incorporation in the University of Bristol. The book has many excellent illustrations of old and modern Bristol, and the cost of publishing it has been defrayed as a centenary gift by the well-known medical publishers, Messrs. John Wright and Sons.

The various functions and receptions in connexion with the centenary were fully attended. At the memorial dinner held in the University Union an apposite speech was made by Sir Holburt Waring in proposing the toast of the school. He found that at Bristol there were, in the arrangements of hospitals and the instruction thereat, opportunities offered for the kind of fusion which should get the best out of university medical education—a fusion of the clinical with the academic. At the official luncheon, also held at the University Union, Lord Dawson, from a different point of view, laid much the same stress on the value of adjustment at the centres of medical education. He pointed out that medicine had so grown in scope that the branches might overweigh the trunk, while every year a new subject was added to the already full curriculum. The necessary adjustment could be made, he said, by making the branches of the profession take their proper place as knowledge to be acquired when the basic subjects of medical education have been mastered. All concerned in the affairs of the University must have been proud of the occasion, and special congratulations were more than once offered to Prof. E. Fawcett, F.R.S., who has been dean of the medical school for 40 years.

EFFECT OF RADIUM ON EYE STRUCTURES

SPEAKING of treatment by radium at a meeting of the section of ophthalmology of the Royal Society of Medicine on June 9th, Dr. Roy Ward said that the conjunctiva and eyelids were the most susceptible of the ocular structures to radium, the globe being comparatively radio-resistant, excepting the lens. The onset of cataract as a sequela to irradiation might be quite remote in time. Most of the eye conditions for which radium was applicable needed only surface applications, and no great penetration was desirable. Prolonged gamma radiation, particularly by means of surface moulds, was likely to lead to permanent damage, and, given good sight and the globe in a good position, should be avoided. Lesions of limbus, conjunctiva, and cornea were treated solely with beta radiation, which was quite absorbed by half a millimetre of platinum, while over 90 per cent. of the gamma radiation penetrated such a screen. Hence for beta radiation a very thin screen was used. Exact localisation was all-important, and some device was needed to retain flat applicators in the precise position required. The eye was cocainised, and the posture of the patient must be a relaxed and comfortable one, the gaze being kept fixed at one spot. It was advisable to have the patient under the supervision of a nurse to prevent the eyes from wandering. The common tumours of the conjunctiva and cornea were epithelioma and melanoma. Usually these were small when first seen, and removal of a portion for microscopical examination was contra-indicated, as it involved great liability to spread. Generally epithelioma arose near the limbus, and this situation favoured the use of beta radiation, owing to the ease of retaining applicators in position. The duration of the sittings varied between 45 and 65 minutes, and usually the following reaction was not severe; it occurred in 10 to 14 days after the exposure. The full effect was not apparent for six or eight weeks, and if at the end of that time the lesion had not disappeared the treatment could be repeated. Melanoma of the conjunctiva was of less frequent occurrence, and usually it had a pre-existing nævoid base. The treatment was the same as for conjunctival epithelioma. Primary tumours of the cornea were very rare; those dealt with at the Radium Institute had reacted well to the same treatment. Mooren's ulcer of the cornea was much more difficult to treat by irradiation, and the prognosis was grave. Though the results were not uniformly good, radium treatment with a safe dose, for 45 to 50 minutes, had been encouraging; if necessary, further treatment could be given at the end of six weeks. In spring catarrh, which was intractable to ordinary treatment, distinct benefit, with about 40 per cent. of cures, had been obtained from repeated applications of unscreened radium to the conjunctival surface of the upper lid. Cavernous nævi and raised capillary nævi, especially at an early stage, were suitable for radium (slightly screened) applications, but not the "port-wine" variety. Improvement was seen about six months after the last exposure to the radium; if excessive exposure was given, telangiectases were liable to appear. Papillated or filiform papillomata could usually be cured by unscreened applications in 1 to 1½ hours. During the last few years 20 pitch-warts had been treated at the Radium Institute. Dr. Roy Ward also discussed radium treatment of malignant growths of the eyelids and rodent ulcer. The treatment of glioma of the retina was primarily surgical, and choroid sarcomata and other tumours growing from less accessible parts of the orbit were not suitable for radium applications as a primary measure.

In a note on the effect of irradiation on the eye appended to the report of the radiological registrars of University College Hospital for 1932, the ophthalmic registrar, Mrs. Philippa Martin, F.R.C.S., discusses in some detail the reactions observed under radium treatment of orbital and extra-orbital tumours. The conjunctival reaction to radium is one of œdema and hyperæmia, and reaches its maximum about the sixth day after insertion of the needles. It is usually accompanied by a muco-purulent discharge of which the bacteriology is being investigated. Where radium needles are placed in close apposition to the conjunctiva a scar is formed. Contraction and thickening follow after some months. Epiphora occurs either from cicatricial ectropion or from obliteration of the punctum lacrymale by the scar. Several cases of iritis were observed, but no signs of accompanying cyclitis. The reaction was immediate and showed no tendency to relapse. One of these cases developed a cataract which became mature 28 days after insertion of the radium; in two cases cataract developed after 18 months. No effect on the retina or optic nerve has so far been observed. Corneal ulceration, in two cases severe, has followed irradiation by radium in four cases. The cases so far examined are few. Mrs. Martin put forward certain tentative suggestions as to the probable effect on the structures of the eye of irradiation applied to tumours in its neighbourhood: (1) The smaller doses, such as are used for basal-celled carcinoma, even if repeated, produce an effect which is limited to the conjunctiva —e.g., contraction, epiphora, and loss of eyelashes. (2) Repetition of a dose of radium which ordinarily produces no damage to the eye may be followed by severe destructive effects. (3) The dose of radium which can be applied to an eye without permanent damage is not constant, but varies with individual tolerance. (4) No effect has so far been observed on the other eye, probably because the ethmoid provides an adequate screen.

SERUM TREATMENT OF ACUTE POLIOMYELITIS

THE Medical Research Council announce that, after discussion with other bodies concerned, it has been decided to issue a supply of serum obtained from patients convalescent from acute poliomyelitis, with a view to its trial in the treatment of the preparalytic stage of the disease. The Council state that encouraging reports on the results obtained by this treatment have been received from Australia and Canada, but adequate data are still needed to confirm its value, particularly in view of doubts which recent experience in America has cast on the reliability of the basic data. With the coöperation of several hospitals, a limited supply of "convalescent" serum has already been obtained and prepared for issue at the Lister Institute (Department for the Preparation and Study of Antitoxic Sera), Elstree, Herts. The main stock of this serum has been deposited at the Western Fever Hospital, Seagrave-road, London, S.W. 6 (Fulham 2105), where suspected early cases will be admitted for observation and treatment in the preparalytic stage, and whence supplies of serum may be obtained by other hospitals and practitioners in the London area for use in appropriate cases. When the quantity of available serum is larger, it is hoped also to be able to send supplies to different provincial centres.

With a view to increasing the stock, practitioners and public health officers who know of convalescents, or groups of convalescents, willing to be bled are earnestly requested to communicate with the Lister Institute, Elstree, Herts. Arrangements could then be made to supply apparatus for the collection of serum, or, if circumstances permitted, to send a worker to perform the actual bleeding. The serum will be supplied gratuitously on the understanding that the case-record forms enclosed in the cartons shall be completed and sent for collation and analysis to the Medical Research Council, 38, Old Queen-street, London, S.W. 1. It is regarded as essential that the administration of the serum should only be done by a medical practitioner or pathologist who is experienced in the technique of lumbar puncture and intrathecal injection. The serum is issued in outfits each containing 4 × 25 c.cm. ampoules, or sufficient serum to complete the treatment of a single case, and full particulars of mode of administration and dosage are contained in the cartons.

Owing to the limited stock of serum at present available it is particularly requested that the treatment shall be used only in the *preparalytic stage of the illness*, or exceptionally in a pyrexial phase when the symptoms indicate a rapidly progressive invasion of the spinal cord as shown by extension of the paresis or paralysis. The serum should on no account be used in the post-febrile stage when the infection has become quiescent and paralysis is established; the evidence does not support its employment in this stage. The attention of physicians using the serum is called especially to the "Memorandum on Acute Poliomyelitis," issued in 1932 by the Ministry of Health, and obtainable from H.M. Stationery Office.

THE BED-BUG

BY the fouling of articles with excreta, by its objectionable smell, and above all by the irritation of its bite, the bed-bug, though not known to carry disease, displays itself as a pest whose relative importance is increasing. Not only is it present in a surprisingly high proportion of old houses in this country, but the public health authorities are faced with a serious practical problem in the infestation of new houses, chiefly by way of the furniture and pictures of tenants coming from slum areas. With the idea of throwing light on the problems involved and of bringing together those who meet the insect in its field and those who study its habits in the laboratory, a joint meeting of the metropolitan branch of the Society of Medical Officers of Health and of the Sanitary Inspectors' Association was held on June 29th last at the London School of Hygiene, with Prof. W. W. Jameson in the chair. Dr. V. B. Wigglesworth, of the department of entomology at the School, gave an illustrated outline of the life-history and habits of the bed-bug, emphasising the fact that it can live more than 40 weeks without food, and that changes in temperature and humidity have little effect on its well-being. Prof. J. W. Munro and Mr. A.P.B. Page, Ph.D., of the Imperial College of Science, described their research into problems of disinfestation of goods in warehouses. By ingenious methods a chemical control of the concentrations of various fumigants such as ethylene oxide, and cyanic acid gas was obtained, and thus a knowledge of what exactly happens when these gases are liberated was obtained for the first time. Several important facts emerged. Thus it was shown that unless some form of mechanical stirring of the air was adopted the concentration of gas was almost nil at rafter level, but that if a simple punkah system was used during the liberation of the gas the concentration was uniform throughout the building. In general the conclusion reached was that the resistance of insects had been greatly underestimated in the past and that, especially at temperatures below 50° F., very much higher concentrations were required than were usually given.

In the ensuing discussion, a somewhat pessimistic attitude was taken up by most of the speakers who had had practical experience of house disinfestation. The London County Council have had 97 per cent. of successes with some 300 houses over a period of nine months with HCN gas, but apart from the very high cost the tenants of adjoining houses have to be dispossessed for 12 and often for 24 hours. Dr. C. F. White, of the Port of London sanitary authority, emphasised the dangers of cyanide fumigation, and stated that it had been generally prohibited in France. Most of the sanitary inspectors seemed to be of the opinion that only stripping woodwork and direct spraying were of use, and varying views were expressed as to the relative merits of certain patent insecticides, views which might be explained by Prof. Munro's suggestion that each product varied in its potency from time to time, and that there should be a guarantee of stable composition. The value of efficient "sealing" was also emphasised, and the fact that the smaller the building the greater was the "leak" effect. A portable apparatus for vacuum fumigation of furniture and pictures was suggested, but the general opinion seemed to be that "the bug wins all along the line." In reviewing Major E. E. Austen's British Museum pamphlet on August 13th last year we mentioned the possibility of utilising some of the natural enemies of these insects for their destruction; but as things are at present Dr. Killick Millard was perfectly right when he pointed out (Sept. 3rd) that few people would welcome the introduction of cockroaches, red-ants, or even hook-scorpions into their houses on the chance that they would wage war on bugs.

Proper control of the qualifications of men engaged in fumigation, education of public opinion, and, above all, further research—which cannot fail to pay for itself many times over in the long run—are clearly demanded if anything more than tinkering is to be done in the matter.

ANEURYSMS OF THE SINUS OF VALSALVA

UNTIL the last few years the diagnosis, during life, of aneurysm involving the intrapericardial portion of the aorta (aneurysms of the sinuses of Valsalva) was thought to be difficult or impossible. Of four cases of this type lately recorded [1] one is an instance of forward projection of the sac, and in another it extends to the left. Both of these were accompanied by clinical signs suggesting aneurysm—namely, expansile pulsation and a positive Wassermann reaction, and confirmation was given by radioscopy. In the second case the sac could be seen to arise from the first part of the aorta and formed a prominence distinct from that of the pulmonary artery; but it may not always be possible to distinguish aortic aneurysms in this situation from aneurysms of the pulmonary artery, though pulse changes indicating aortic insufficiency would of course be strong evidence in favour of the former. It is to the right, however, that such aneurysms are most frequently found to extend. Here the sac may project upwards or downwards and a differential diagnosis has to be made from mere tortuosity or cylindrical dilatation of the ascending aorta, when the direction is upwards. Most significant is the demonstration on the screen of a pocket which appears grafted on to the shadow of the ascending aorta. Greater interest attaches to aneurysms developing to the right and downwards in that they occupy a quite unusual part of the cardiac shadow, and there is a risk of misinterpretation or of non-recognition. There are three clinical signs of such an aneurysm: pulsation in the fourth or fifth intercostal space; pain in the right side of the chest; and a double aortic murmur having its maximum intensity at the inner ends of the fifth and sixth right intercostal spaces. On radioscopy the appearances may suggest at first sight an enlarged right auricle or even a greatly dilated left auricle. On close examination, however, the separate arcs of the aneurysm and of the right auricle may be distinguished, not only by their shape but also by the asynchronism of their movements. Finally, strong evidence for the aortic origin of such a shadow will be any sign of calcification in its border.

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[1] Lian, C., Marchal, M., and Deparis, M.: Bull. et mém. soc. méd. hôp. de Paris, May 8th, p. 522.

TELEPATHY ON TRIAL

ON March 25th we drew attention to a test of telepathy in which readers of the *Scientific American* were asked to participate. The test was simple though somewhat laborious. It merely consisted of two persons making 500 throws with an ordinary die. The "transmitter" was instructed to look at the number thrown each time and to "concentrate" upon it; the "percipient," who was to be blindfolded, was required to state the number, his statement being recorded, without comment, as right or wrong. When a reasonably large number of such sets had been returned by enthusiastic readers, the number and distribution of correct answers could be compared with that expected on the theory of chances. We suggested that the working out of this chance distribution might prove more difficult than may seem at first sight owing to the fact that ordinary commercial dice are not invariably true, but sometimes tend to record an excess of high numbers. If the "percipient," consciously or unconsciously, tended to guess high numbers rather than low numbers the frequency of success would, then, certainly be greater than that expected on the theoretical chance basis adopted. The *Scientific American* (July, 1933, p. 10) has now made an analysis of the first 120 sheets returned, the general conclusion being that the results show significant divergencies from the chance distribution, and that certain of the findings must be followed up for further and more comprehensive study. The expected number of correct guesses in 500 throws is 83; on the 120 sheets analysed the observed mean number of correct guesses was 93. The difference is relatively slight, but with 60,000 throws the probability that it has arisen by chance is very small. The highest number of successes recorded was 223, so that apparently "telepathy" at its best could not secure a correct answer in as much as 50 per cent. of the trials—that is excluding the gentleman who purported to have been correct every time, adding modestly that he could speak to each and every person in each and every part of the world by mental telepathy. Needless to say his form was rejected; but can we be sure that in other cases recording an abnormally high percentage of successes there has not been some violation of the rules, and not necessarily a conscious violation? Some notes on the ten charts of highest record reveal the fact that eight of them are the work of one pair of experimenters. To include an unequal number of tests from pairs of participants seems to be an illogical procedure which makes the frequency distribution of successes difficult to interpret. If the eight tests by this one pair be excluded the observed mean number of successes in the remaining 112 becomes 85·6, a value which differs insignificantly from the expected value of 83·3. Further, it is recorded that the percentage of successes rose in these eight tests by Mr. and Mrs. S., as the experiments went on from day to day, from 29·4 per cent. in the first 500 to 44·6 per cent. in the last, and that sometimes the work was better in the early part of a group of throws but more frequently it was better later. Is this the way in which telepathy works? Does it improve with practice? It is a curious phenomenon. Can we be sure that the die used was always true, that no number-guessing habit was formed which would correspond with a bias in the dice, that the percipient had no knowledge of past experience except the crude percentage of right and wrong, recorded *without comment?* So far this trial of telepathy merely leads to the conclusion that there are a number of observations recorded which are not likely to have arisen by mere chance. *How* they have arisen is the problem for the promised "further and more comprehensive study." An evening's dice-throwing by husband and wife, or fellow students at college, is not going to lead to scientific evidence of causation; only further controlled experiments can throw any light upon that. If the results of these further experiments warrant they will be reported, it is stated, in the pages of the *Scientific American.* It is sincerely to be hoped that the conditional clause ("if the results warrant") does not imply that negative results will go unreported. The dice-throwing experiments are sufficient to whet the appetite; it would be still more interesting to have an explanation of the abnormally successful "percipients," be it telepathic or not. So far the verdict must definitely be one of unproven.

CHAPTERS IN AMERICAN OBSTETRICS

A COLLECTION of essays on the history of obstetrics in America[1] is certain of a welcome here because the development of medical practice in another country has a special interest for ourselves. Its progress shows what would naturally be expected: dependence on the Motherland, first for ready-made practitioners, then for the training of its own sons sent back to the old universities, later the foundation of medical faculties in the universities of the new country, and eventually complete independence. Except for the opening chapter on the Beginnings of Obstetrics in America, the others are studies of the character and contributions of some of those who have influenced the subject and thus serve to illustrate its evolution up to the middle of the last century.

The first essay demonstrates the West following the East in making the change from the untrained midwife to the medical "man-midwife" in the eighteenth century, save that it seems to have done the business more thoroughly and to preen itself on the completeness of the change. One of the more recent ways of showing conversion from early heresies has been the proscription of the use of the word "midwifery," although of the oldest and bluest English blood, in favour of the new-fangled Latin term meaning exactly the same thing. "Midwifery" has apparently been abandoned in the American language as connoting something inferior to obstetrics and signifying rather practice by midwives. Prof. Thoms would surely have been justified, however, in using the term for the title of his opening chapter, for it is almost wholly concerned with the practice of the midwives of the early colonial days and only touches on the earliest of the "men-midwives." Not only is this appropriate occasion for its use rejected, but aversion is further shown in the succeeding chapter on Samuel Bard, the author of the first text-book on obstetrics published in America, but entitled a Compendium of Midwifery; and again in a later essay on "William Potts Dewes and the First System of Obstetrics," although here also the original title was "System of Midwifery." The transatlantic anathema must be powerful indeed to call for the bowdlerising of old titles. Other chapters consist of essays on John Stearns, who is credited with discovering the use of ergot as an ecbolic; on Oliver Wendell Holmes and his famous paper on "Puerperal Fever as a Private Pestilence"; on Marmaduke Wright, who anticipated Braxton Hicks in the discovery of a form of bipolar version; and lastly one of wide interest on Walter Channing and Etherisation in Childbirth.

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[1] Chapters in American Obstetrics. By Herbert Thoms, M.D., Associate Professor of Obstetrics and Gynecology, Yale University. London: Baillière, Tindall and Cox. 1933. Pp. 90. 11s. 6*d*.

Prof. Thoms tells these stories of his professional forebears in his own country in a way that makes pleasant and easy reading; they are certain to be instructive to those who may look up the history of the various forms of treatment associated with the names of the old American physicians who professed midwifery before its translation into the higher sphere of obstetrics.

AMIDOPYRINE IN MEASLES

WITHIN the last few years several observers have published their experiences with amidopyrine (pyramidon) in the treatment of measles. M. Loewenthal,[1] who first advocated its use in that disease, holds that this drug, administered at or before the appearance of the rash, acts as promptly in measles as do quinine in malaria and the salicylates in rheumatic fever, causing a rapid fall in temperature, partial or complete inhibition of the eruption, euphoria, and speedy abatement of the catarrhal symptoms. M. P. Borovsky and F. Steigmann point out[2] that there is no general agreement that amidopyrine is a specific in measles. Some believe that it merely acts in the same way as any other antipyretic, and others that it should not be used at all. Borovsky and Steigman report their own observations upon 194 patients suffering from measles. Alternate patients received the drug in doses of gr. 1 for each year, up to grs. 5 three times a day for those above 5 years of age: 95 patients were treated with amidopyrine while 99 served as controls. Its use did not inhibit the eruption in the one case seen in the pre-eruptive stage; nor did it shorten the course of the disease in the others or lessen the incidence of complications. They conclude that amidopyrine is a valuable antipyretic adjuvant, since a greater number of those in the treated group became afebrile on the second day, but that it should not be considered as a specific remedy for measles.

THE DIET OF ANIMALS AND MAN

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SPECIAL ARTICLES

A PROVISIONAL STABLE STANDARD FOR ANTIPNEUMOCOCCUS SERUM, TYPE I., AND ITS PRACTICAL APPLICATION

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BACTERIOLOGIST AT THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES, BECKENHAM

G. F. Petrie, M.D. Aberd.
BACTERIOLOGIST IN CHARGE AT THE SERUM DEPARTMENT OF THE LISTER INSTITUTE, ELSTREE; AND

Wilson Smith, M.D. Manch., Dipl. Bact., Manch.
MEMBER OF THE SCIENTIFIC STAFF OF THE NATIONAL INSTITUTE FOR MEDICAL RESEARCH

During the past few years many clinical trials of serum therapy in acute lobar pneumonia have been carried out, both in this country and in the United States of America. Most of these support the view that serum treatment is of definite value, especially in cases due to infection by pneumococcus, type I.

One of the chief difficulties in making an accurate assessment of the data acquired hitherto is the lack of a common standard of reference with which to compare the various serum preparations used clinically. Methods for the titration of antipneumococcus sera have been evolved, and some of the therapeutic preparations used hitherto have been labelled as containing a certain number of "units." Until one standard serum is available, however, in terms of which all others may be assayed, such labelling can have little value, and may indeed be definitely misleading, as it will remain possible for the clinician to use and the patient to receive a serum of high nominal but low actual potency.

Through the generosity of Dr. Lloyd D. Felton, of the Harvard University medical school, many workers in this and other countries have been provided with a liquid antipneumococcus serum, in terms of which other preparations of this antibody have often been assayed. Antisera in the liquid form, however, tend to lose their specific properties, even when preserved under the best conditions attainable. It appeared to us, therefore, that a dry stable standard preparation of antipneumococcus serum, type I., would serve many useful purposes. During the past three years clinical trials of the serum have been promoted by the Medical Research Council and the Scottish branch of the British Red Cross Society, and are being continued. The value of the data acquired will be greatly enhanced if the potency of the sera from different sources used in the trials and in ordinary practice are standardised on a uniform basis.

With a view to causing as little change as possible in existing practice, the dry standard serum which has been prepared has been assayed, as accurately as the methods at present available allow, in terms of the liquid antiserum supplied by Dr. Felton, and the potency of the dry standard may thus be expressed in terms of the unit originally proposed by Dr. Felton. An official unit for antipneumococcus serum, type I., has not yet been adopted, but it is suggested that, pending the definition of a unit by international agreement, the unit proposed by Dr. Felton shall be provisionally accepted as the basis of measurement for all antipneumococcus sera, type I., intended for clinical use in this country.

The first section of this report deals with the actual preparation of the dry standard and with various tests carried out to ascertain its potency and suitability for use and distribution. This part of the work was carried out at the National Institute for Medical Research.

The second section contains the records of comparative tests of the dry standard and the liquid antiserum, F. 146, supplied by Dr. Felton; these were carried out at the Lister Institute, Elstree, the National Institute for Medical Research, Hampstead, and the Wellcome Physiological Research Laboratories, Beckenham. For reasons of economy and convenience, it is desirable to issue the standard in the form of a glycerol solution. It was therefore necessary to ascertain whether the antibody is stable in this form, and whether the presence of glycerol interferes in any way with the performance of the tests. Accordingly, a glycerol solution of the standard was prepared at Hampstead and compared in the three participating laboratories with the dry standard after reconstruction in salt solution. The tests were carried out independently, each laboratory applying its own methods of comparative estimation.

The dry standard which has been prepared is available for workers who are interested in the titration of antipneumococcus serum, type I., in this and other countries. Application for the standard should be made to the Department of Biological Standards, the National Institute for Medical Research, London, N.W. 3, where arrangements have been made for its distribution at regular half-yearly intervals.

I. Preparation and Tests of the Standard Serum

1. *Preparation.*—The dry standard has been prepared from a natural antipneumococcus serum, type I., of high potency. Following the usual technique adopted in the Institute for Medical Research for the preparation of antisera in the dry stable condition, 5 c.cm. quantities of the natural serum were delivered, by means of a precision distribution apparatus, into a series of dry sterilised ampoules. By exposure to the action of phosphorus pentoxide in vacuo the contents of the ampoules were reduced to absolute dryness, as shown by the attainment of constant weight by a number of selected ampoules. The ampoules were then filled with pure, dry nitrogen gas and sealed. The whole of the ampoules containing the dry standard, amounting to about 300 in all, are stored continuously in the dark at −2° C. to −4° C.

2. *The total solids in the sealed ampoules of the standard.*—Each ampoule contains the total solids from 5 c.cm. of the original antiserum. The weights of the total solids in seven ampoules selected at random were found to be as follows: 0·4423, 0·4417, 0·4455, 0·4400, 0·4461, 0·4438, 0·4407 g. Mean weight, 0·4429 g.

3. In *reconstructing the dry standard* the following procedure has been adopted in the three participating laboratories, and it is suggested that the same plan be followed by other laboratories using the standard:—

On the day preceding that on which the standard is to be used, an ampoule is opened near the sealed end ecbolic; on Oliver Wendell Holmes and his famous paper on "Puerperal Fever as a Private Pestilence"; on Marmaduke Wright, who anticipated Braxton Hicks in the discovery of a form of bipolar version; and lastly one of wide interest on Walter Channing and Etherisation in Childbirth.

Prof. Thoms tells these stories of his professional forebears in his own country in a way that makes pleasant and easy reading; they are certain to be instructive to those who may look up the history of the various forms of treatment associated with the names of the old American physicians who professed midwifery before its translation into the higher sphere of obstetrics.

AMIDOPYRINE IN MEASLES

WITHIN the last few years several observers have published their experiences with amidopyrine (pyramidon) in the treatment of measles. M. Loewenthal,[1] who first advocated its use in that disease, holds that this drug, administered at or before the appearance of the rash, acts as promptly in measles as do quinine in malaria and the salicylates in rheumatic fever, causing a rapid fall in temperature, partial or complete inhibition of the eruption, euphoria, and speedy abatement of the catarrhal symptoms. M. P. Borovsky and F. Steigmann point out[2] that there is no general agreement that amidopyrine is a specific in measles. Some believe that it merely acts in the same way as any other antipyretic, and others that it should not be used at all. Borovsky and Steigman report their own observations upon 194 patients suffering from measles. Alternate patients received the drug in doses of gr. 1 for each year, up to grs. 5 three times a day for those above 5 years of age: 95 patients were treated with amidopyrine while 99 served as controls. Its use did not inhibit the eruption in the one case seen in the pre-eruptive stage; nor did it shorten the course of the disease in the others or lessen the incidence of complications. They conclude that amidopyrine is a valuable antipyretic adjuvant, since a greater number of those in the treated group became afebrile on the second day, but that it should not be considered as a specific remedy for measles.

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that approximately equal mortality-rates were obtained when the reconstructed standard serum and the pooled serum F. 146 were diluted in the ratio 1 : 5. Thus, 0·001 c.cm. of the reconstructed standard serum gave a mortality-rate of 27·5 per cent., and 0·005 c.cm. of serum F. 146 gave a mortality-rate of 30 per cent. Similarly 50 per cent. of the mice died when they received 0·0005 c.cm. of the reconstructed standard serum or 0·0025 c.cm. of serum F. 146.

The serum doses in these tests were given to the mice one hour before the test dose of culture, and thus the serum functioned as a prophylactic agent. Experimental work on the curative action of antipneumococcus serum (type I.) has indicated that a method of titration of the specific antibody may be employed by arranging for the intravenous administration of graduated doses of the serum to groups of mice at a suitable interval after a highly lethal dose of the culture has been given to them intraperitoneally (Petrie and Morgan, 1932). When the serum is given to mice under these conditions it is capable of exerting a curative action and of bringing about complete recovery, even when a bacteræmia is present. The relative efficiency of the reconstructed standard serum and serum F. 146 as a curative agent has been tested by this method.

TABLE I

SUMMARISING THE RESULTS OF PROPHYLACTIC AND CURATIVE TESTS IN MICE TO DETERMINE THE POTENCY RATIO OF (1) THE RECONSTRUCTED STANDARD SERUM AND THE POOLED SERUM F. 146, AND (2) THE RECONSTRUCTED STANDARD SERUM AND A FIVEFOLD DILUTION OF IT IN GLYCEROL SALINE

Type of experiment.	Dry standard serum. Dose in c.cm.	Serum F. 146. Dose in c.cm.	Glycerinated standard serum. Dose in c.cm.	Group mortality.			Percentage mortality.		
				Dry standard.	F. 146.	Glycerol standard.	Dry standard.	F. 146.	Glycerol standard.
Prophylactic.	0·0005	0·0025	—	15/30	15/30	—	50	50	—
,,	0·001	0·005	—	11/40	9/30	—	27·5	30	—
Curative.	0·005–0·00125	0·025–0·00625	—	52/120	44/120	—	43·3	36·7	—
Prophylactic.	0·0008–0·00067	—	0·004–0·003	71/100	—	74/100	71	—	74

The infecting dose that was chosen was 0·000,000,05 c.cm. and it gave a mortality-rate in control mice of 82 per cent.: the interval between the dose of culture and the intravenous dose of serum was 12 hours. The summed results of the tests are included in Table I., and they show that an equivalent curative effect was obtained when the doses were so arranged that in each of a number of tests the amount of serum F. 146 which was administered to the mice was exactly five times that of the standard serum; the amount of serum that was given in the individual tests ranged from 0·005 to 0·00125 c.cm. of the reconstructed serum, and from 0·025 to 0·00625 c.cm. of serum F. 146. The difference between the mortality-rates in the two groups of mice—namely, 6·6 per cent.—is not statistically significant. The mean mortality-rate in the two groups is about 40 per cent., so that in this experiment the specific serum has halved the number of deaths, as compared with the control group.

The results of the prophylactic and the curative tests confirm each other, and thus the conclusion may be drawn that the potency ratio of the reconstructed standard serum and serum F. 146 is 5 : 1.

(*b*) *Comparison of the potency of the dry standard serum after reconstruction in saline and of a fivefold dilution of this in glycerol saline solution.*—The comparison was made by employing the prophylactic method which has been described above. Doses of the serum solutions with a constant ratio of 1 : 5 were injected into equal groups of mice; thus the doses varied from 0·0008 to 0·00067 c.cm. of the reconstructed serum, and from 0·004 to 0·003 c.cm. of the glycerol solution. The results are given in Table I., and they show that, in correspondence with the dilution ratio, the reconstructed standard serum possesses five times the protective value of the glycerol solution.

B. TESTS AT THE NATIONAL INSTITUTE FOR MEDICAL RESEARCH

(*a*) *Comparative tests of the dry standard serum and serum F. 146.*—Two separate comparative tests of the two sera under consideration were made. The technique followed was that used in the mouse tests recorded in the first section of this report. In each test five different doses of each serum were tested against a constant dose of fully virulent pneumococci (0·01 c.cm. of an 18-hour blood broth culture). Forty mice were used for each serum dose, so that 400 mice were used in each test. The doses of the dry standard serum employed were such as from previous experience could be expected to yield a satisfactory mortality curve, ranging from a high to a low percentage mortality.

The doses of serum F. 146 used in the first test were seven times the corresponding doses of the standard serum, but for the second test they were adjusted to five times the doses of the standard serum, because an examination of the two sera by the precipitation test (Smith, 1932) showed that the precipitation ratio was dry standard serum : F. 146= 5 : 1. The results are given in Table II.

TABLE II

FIRST TEST

Culture dose in c.cm.	Dry standard dose in c.cm.	F. 146 dose in c.cm.	Group mortality.		Per cent. mortality.	
			Dry standard	F. 146	Dry standard	F. 146
0·01	0·0002232	0·0015625	36	32	90	80
,,	0·0004464	0·003125	30	21	75	52·5
,,	0·0008928	0·00625	22	12	55	30
,,	0·00178	0·0125	13	6	32·5	15
,,	0·00357	0·025	9	3	22·5	7·5

SECOND TEST

Culture dose in c.cm.	Dry standard dose in c.cm.	F. 146 dose in c.cm.	Group mortality.		Per cent. mortality.	
			Dry standard	F. 146	Dry standard	F. 146
0·01	0·00025	0·00125	39	38	97·5	95
,,	0·0005	0·0025	33	33	82·5	82·5
,,	0·001	0·005	22	20	55	50
,,	0·002	0·01	15	15	37·5	37·5
,,	0·004	0·02	9	9	22·5	22·5

From the results of the first test it would appear that the British standard serum is about 3·5 times and 5 c.cm. of sterile distilled water added. The ampoule is placed in the incubator or a water bath at 37° C. for about an hour, and the neck of the ampoule is then rotated between the palms of the hands. If the solid has not dissolved completely, the ampoule is allowed to stand at room temperature and is gently rotated at intervals until solution is complete. The ampoule is then stored in the cold room until required.

The product is not quite completely soluble. On standing overnight it will be found that the supernatant fluid is clear and bright yellow in colour, but there is a very small deposit of a fine white solid at the bottom of the ampoule. The reconstructed serum may now be shaken to secure thorough mixing; the small amount of insoluble material may be disregarded and the slightly opalescent fluid used in the tests.

4. *Sterility.*—Tests carried out on ampoules selected at random during the operation of filling out and on samples of the reconstructed standard have shown that the product is sterile. Provided that the usual aseptic precautions are taken in removing portions of the solution and that the main bulk is preserved at low temperatures, each ampoule will afford sufficient material for a number of tests.

5. *Preparation of a glycerol solution of the standard.* In order to economise the standard preparation and at the same time produce it for use in a convenient yet stable form, a solution of the standard in 66 per cent. glycerol saline has been prepared. Glycerol saline (25 c.cm.) was used for dissolving the contents of one ampoule, so that the strength of this glycerol solution should be one-fifth that of the solution obtained by reconstruction as described in (3) above. The results of the tests of the relative potencies of these two solutions of the standard preparation are recorded in the second section of this report.

6. *Comparative tests of the dry standard and the serum from which it was prepared.*—The contents of one ampoule of the dry standard were dissolved as described under (3) above. The potency of the solution so obtained was compared with that of the original antiserum by the mouse protection test and the precipitation test (Smith, 1932).

(*a*) *The Mouse Protection Test.*—Five different doses of the reconstructed serum and five similar doses of the original serum were tested against a constant dose of virulent pneumococci (0·01 c.cm. of an 18-hour blood broth culture), 40 mice being used for each serum dose. The mice were inoculated intraperitoneally, in each case the inoculum being 1 c.cm. of a mixture of pneumococci and a particular dose of serum. The mixtures were made exactly five minutes before the inoculations of the corresponding group of 40 mice were begun. The experiment was terminated on the seventh day, up to which time the deaths were recorded at 24-hour intervals.

The results of the mouse protection test showed no significant difference between the protective powers of the dried and original sera, for the slight differences of percentage mortality in corresponding groups of mice lie well within the error of the test, as calculated by Trevan (1930). It may therefore be safely assumed that the manipulations involved in the preparation of the standard did not appreciably diminish the protective power.

(*b*) *The Precipitation Test.*—One of us (Smith, 1932) has elaborated an in-vitro test for estimating the potency of antipneumococcus sera based upon the precipitation reaction which occurs when such sera are mixed with the specific soluble substance of Heidelberger and Avery (1923). The strength of a serum is measured by the ratio of soluble specific substance to serum found necessary to produce "optimal precipitation," Dean and Webb (1926). It was shown that the precipitation ratios thus obtained were an excellent measure of the mouse protection values in the case of unconcentrated antisera. Unfortunately, for the purposes of titration, this was not found to hold true for certain concentrated antibody preparations. Nevertheless, it was felt that a serum chosen at the present time to serve as a provisional standard ought to possess good and constant precipitating properties, so that it might be used, if desired, in this or some other similar in-vitro method of assay.

Tests made with the original serum before preparation of the dried standard was begun showed that its precipitation behaviour was quite typical. It was shown furthermore that its value, in terms of other sera, was the same whether measured by the precipitation test or by the mouse protection test. These results indicated that the serum was entirely suitable for the purpose in view.

When the process of desiccation had been completed several phials were selected at random and the dried serum of each was reconstructed to the original volume. The samples were then tested by the precipitation test in parallel with a sample of the original serum which had been kept in cold storage. The results obtained showed that desiccation had slightly reduced the reaction velocity of the serum but had not altered its precipitation ratio.

II. Comparative Tests of the Dry Standard and the Liquid Antipneumococcus Serum F. 146

For the purpose of the comparative tests, described below, the following preparations of antipneumococcus serum were supplied :—

(1) Antipneumococcus serum, F. 146 (Felton). Each of the participating laboratories supplied two ampoules (40 c.cm. from each laboratory) of antiserum F. 146. The contents of the six ampoules were mixed and samples of the pooled serum sent to each laboratory.

(2) The dry standard. In each laboratory the contents of one ampoule were dissolved in 5 c.cm. of sterile salt solution in the manner described above.*

(3) Samples of the glycerol solution, prepared as described above, were sent to each laboratory.

The relative potency of the dry standard and the antiserum F. 146 was of course unknown. The participating laboratories were informed that the glycerol solution should have a potency equal to one-fifth of the potency of the solution obtained by reconstruction of the dry standard in 5 c.cm. of salt solution; the purpose of the comparative tests of the glycerol solution was to determine whether this ratio was confirmed by experiment.

A. TESTS AT THE LISTER INSTITUTE, ELSTREE

(*a*) *Comparative tests of the reconstructed standard serum and the pooled serum F. 146.*—The dry standard serum was reconstructed in saline solution in accordance with the procedure that has already been described. Dilutions of the reconstructed standard serum and the pooled serum F. 146 were so made that varying doses were contained in a constant volume of 0·5 c.cm.; these were injected intravenously into groups of ten, or multiples of ten, mice. One hour later a dose of 0·001 c.cm. of an 18-hour horse serum broth culture of a virulent strain of pneumococcus, contained in a volume of 0·5 c.cm., was injected intraperitoneally into the test animals. Experience has shown that when this method is used, most of the deaths occur during the second and third days of the test; for this reason the observations were limited to a period of four days.

A summary of the combined results of three separate tests is given in Table I. The data indicate

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* Subsequent experience has shown that sterile distilled water is a better solvent.

Wilson Smith; and that described in Section II. c by H. J. Parish in collaboration with J. W. Trevan.

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THE CAMBRIDGE MEDICAL CURRICULUM

IN 1931 a memorandum on the curriculum of medical students at Cambridge was submitted to the Vice-Chancellor of the University with influential endorsement which was designed to show that a scrutiny of the educational course of the resident students required radical changes. The memorandum was published in THE LANCET of July 30th, 1932, a considerable interval of time having elapsed between its delivery and the report of the University Syndicate upon it. The memorandum gave reasons for the institution of a Medical Sciences Tripos as a practical method of adjusting the double claims of medicine upon medical students as a professional calling and as a university faculty. The Syndicate at that time looked favourably upon the arguments employed in the memorandum, but there were differences of opinion, not only in university circles, but among all authorities on education as to the wisdom of setting up the new tripos, and the Syndicate suggested that, if instituted, it should carry on only for a probationary period of five years.

Now an amended report of the Syndicate on the medical curriculum has been published, showing that the Syndicate have reconsidered their earlier views. During the past year the opinions of a number of resident and non-resident graduates have been ascertained, and a majority both of the resident and non-resident graduates are opposed to the introduction of a Medical Sciences Tripos, holding that the necessary reforms in medical education in the University can be effected inside the existing Natural Sciences Tripos. The existing plan of the curriculum is set out in detail in the current Students' Number of THE LANCET,[1] and, as far as the medical students carrying on their studies at the University are concerned, it is only the examinations for the First and for the Second M.B. that are under discussion in relation to the Natural Sciences Tripos; but here a duplication of courses and examinations, both vexatious and uneconomical, exists.

Agreement has now been reached between the Syndicate and the Natural Sciences Tripos Committee whereby the substance of the proposals for a Medical Sciences Tripos can be incorporated in the Natural Sciences Tripos; and it is believed that the changes will meet the requirements of medical students in Cambridge. The report runs:—

Anatomy.—The present system of examinations divides the study of anatomy artificially into the study of the topographical detail which is demanded of the student in the Second M.B. Examination, Part II., and the study of the scientific anatomy—i.e., morphology and embryology—which is required of him in the Natural Sciences Tripos, Part I. Students tend to concentrate on topographical anatomy for the Second M.B. Examination, Part II., during the first two years, and on embryology and morphology during the last year before the Tripos. The Syndicate hold the view that topographical anatomy, embryology, and morphology should be taught together as one subject. On the other hand, they are of opinion that the student should not be expected to memorise too much topographical detail for a Tripos Examination. The Syndicate therefore suggest that anatomy in the Natural Sciences Tripos should consist of equal proportions of scientific anatomy (morphology and embryology) and topographical anatomy. The knowledge of topographical anatomy demanded should be on broader lines and of less detailed character than that ordinarily required in the Second M.B. Examination, and should deal mainly with the general architecture of the body together with a more detailed knowledge of certain important areas such as the nervous system. A student who obtains honours in the Tripos should not be allowed to proceed to the Third M.B. Examination unless he has satisfied the examiners in anatomy, dissected the whole body, and passed a series of practical tests to ensure that dissection has been adequately and thoroughly carried out.

Physiology.—At the present time the chemical part of physiology is taught in the Department of Biochemistry. In their previous report the Syndicate gave reasons why this arrangement is not altogether satisfactory, and they again recommend that provision be made for the student to learn the chemical part of physiology in the Department of Physiology, and to study in the Department of Biochemistry some of the biochemistry which is less closely related to particular branches of physiology but useful to the education of a medical student. Proposals for the teaching of pharmacology are given below, and the Syndicate suggest that there should be optional questions in pharmacology set in the physiology papers in the Natural Sciences Tripos for students who have already taken the course in pharmacology with a view to proceeding to the Final Examination for the M.B. Degree. A student who obtains honours in the Tripos should not be allowed to proceed to the Final Examination for the M.B. Degree unless he has satisfied the examiners in physiology.

Pharmacology.—Pharmacology is at present taught to students in two alternative courses in the Lent term and in the Long Vacation. The student is examined in pharmacology in the Second M.B. Examination, Part III., and in the Third M.B. Examination, Part II. The Syndicate do not propose to include pharmacology as a subject in Part I. of the Natural Sciences Tripos. They suggest, however, that identical courses in pharmacology should be held in the Lent term and in the Long Vacation, and that a student should not be allowed to proceed to the Final Examination for the M.B. Degree until he has attended this course (or a course in pharmacology elsewhere approved by the Faculty Board of Medicine) and passed a viva voce examination in pharmacology in Cambridge. As suggested above, however, optional questions in pharmacology are to be set in the physiology papers in the Natural Sciences Tripos for students who have taken the course in pharmacology before the Tripos. This will ensure that all medical students study some pharmacology at this stage, and pharmacology will have a place in Part I. of the Natural Sciences Tripos. Students who take Part I. of the Tripos in three years would probably take the course in pharmacology in the Lent term or Long Vacation before the Tripos, but students who take Part I. in two years should be advised to leave the course in pharmacology until the Long Vacation after they have taken Part II. of the Tripos in order not to interfere with their Part II. work. The Syndicate also suggest that there should be opportunity for the student to study pharmacology in conjunction with physiology for the Natural Sciences Tripos, Part II.

The subjects for the Second M.B. examination include also *general pathology,* and the Syndicate consider it desirable to introduce this subject, including bacteriology, as a half-subject in Part I. of the Natural Sciences Tripos, the elements of general pathology to be taught during the last year of work in anatomy and physiology. But as an examination in pathology forms part of the final M.B. examination, it is not suggested that candidates should be required more potent than serum F. 146. In the second test practically identical mortality-rates were obtained after adjusting the doses of serum F. 146 on the basis of the precipitation ratio; that is, by making them five times greater than the corresponding doses of the dry standard serum. The two tests taken in conjunction would therefore suggest that the dry standard equals 4·25 times serum F. 146.

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[1] THE LANCET, August 27th, 1932, p. 430.

(*b*) *Comparison of the potencies of the dry standard reconstructed in salt solution and a glycerol solution of the standard.*—The potency of the two solutions was compared by a mouse protection test similar in all respects to that described above. The volumes of the glycerol solution of the standard serum injected were five times as great as the corresponding doses of the salt solution of the standard. The results of the test showed that the glycerol solution of antibody had exactly one-fifth the protective power of the standard serum, so that the presence of 66 per cent. glycerol could have had no deleterious action upon the protective antibodies measurable by the mouse test.

The results of precipitation tests were also in complete agreement with the known volumetric ratio of the two preparations, the antigen-antibody ratio of the reconstructed standard serum being just five times greater than that of the glycerol solution. Thus the glycerol solution may be used as a standard in those methods of assay which are based upon the flocculation of the soluble specific substance of the pneumococcus, type I.

C. TESTS AT THE WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

(*a*) *Comparison of the dry standard serum and serum F. 146.*—The relationship between the reconstructed serum and the pooled serum F. 146 was estimated by a technique similar to that described in Section I. (par. 6) (also see Parish, 1930). Tests were made in the first instance with small groups of four or five mice, as in routine titrations in these laboratories. Groups were injected with five doses of the reconstructed standard serum and four doses of F. 146, and the potency values of the dried serum calculated in terms of F. 146 by working out the mean protective dose by Kärber's (1931) method of calculation. (The actual calculations were carried out with the logarithms of the doses.) The mean protective dose is the dose which will protect the "average" mouse of the group tested, and is approximately the dose protecting 50 per cent. of animals. These preliminary tests indicated that the average value of the dry standard is about four times F. 146.

Two experiments on a larger scale were then set up, in each of which 480 mice were used. In each experiment the contents of one phial of the dry standard were dissolved, as described above, and a comparison made with the pooled F. 146. The doses of F. 146 were four times those of the dry standard. Each dose was administered to 40 mice, with a dose of culture of 0·01 c.cm. (Table III.). Two sets of mortality results are given in the Table, representing the results up to 48 hours and up to six days. By the same arithmetical procedure as before, the mean protecting doses were calculated.

The ratios of the potencies are inversely proportional to the ratio of the mean protecting doses. From the six-day results the ratio of the dry standard to F. 146 varies from 2·6 to 4·29 with a mean, weighted for the number of mice used, of 3·2. For the two-day results the variation is less—from 4 to 5—with a weighted mean of 4·49. The two-day results correspond more closely with the precipitation ratio. All the two-day figures give higher values except one.

(*b*) *Comparison of the potencies of the dry standard reconstructed in salt solution and a glycerol solution of the standard.*—The comparison was made by a mouse protection test, in which 300 mice were used. The doses of the glycerol solution of the standard were four times those of the solution of the standard in saline. Twenty-five mice were injected with each dose of serum, the culture dose being 0·01 c.cm. The results of the test showed that if deaths occurring within six days are adopted as the basis of the calculation, the potency ratio of the reconstructed serum to the glycerol solution is identical with the dilution ratio (viz., 5 : 1) but if two-day results are taken the potency ratio is 4·2 : 1.

TABLE III

Culture dose 0·01 c.cm. 40 mice in each group

No. of titration.	Dry standard; dose in c.cm.	F. 146; dose in c.cm.	Group mortality.			
			Six days.		Two days.	
			Dry standard.	F. 146.	Dry standard.	F. 146.
1	0·0003125	0·00125	40	40	30	39
	0·000625	0·0025	38	31	16	27
	0·00125	0·005	18	10	4	7
	0·0025	0·01	14	9	3	3
	0·005	0·02	8	2	1	0
	0·01	0·04	2	3	0	1
2	0·0003125	0·00125	40	40	39	34
	0·000625	0·0025	37	38	37	24
	0·00125	0·005	23	19	5	10
	0·0025	0·01	12	22	8	4
	0·005	0·02	7	10	1	2
	0·01	0·04	12	9	1	3

Summary and Conclusions

1. A dry, stable standard preparation of antipneumococcus serum, type I., has been prepared and assayed in terms of a liquid antipneumococcus serum, type I. (F. 146), supplied by Dr. Lloyd D. Felton, of Harvard.

2. Pending the definition of a unit by international agreement, it is suggested that the unit originally proposed by Dr. Felton should be provisionally adopted as the basis of measurement for antipneumococcus serum, type I. One such unit is contained in 0·0886 mg. of the dry stable standard preparation now available.

3. The results of the comparative tests on the same reagents, carried out independently by three different laboratories using different methods of titration, show a fair measure of agreement.

4. All samples of antipneumococcus serum, type I., of unknown potency should be tested in relation to a standard antiserum. The use in all such tests of a common standard would render the results obtained in different laboratories and hospitals throughout the world more readily and directly comparable. The standard preparation is available to all workers who desire to make use of it, by application to the Department of Biological Standards, the National Institute for Medical Research, N.W.3.

The experimental work described in Section I. was carried out by P. Hartley and Wilson Smith; that described in Section II. A by G. F. Petrie in collaboration with W. T. J. Morgan; that described in Section II. B by

Wilson Smith; and that described in Section II. c by H. J. Parish in collaboration with J. W. Trevan.

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THE
CAMBRIDGE MEDICAL CURRICULUM

IN 1931 a memorandum on the curriculum of medical students at Cambridge was submitted to the Vice-Chancellor of the University with influential endorsement which was designed to show that a scrutiny of the educational course of the resident students required radical changes. The memorandum was published in THE LANCET of July 30th, 1932, a considerable interval of time having elapsed between its delivery and the report of the University Syndicate upon it. The memorandum gave reasons for the institution of a Medical Sciences Tripos as a practical method of adjusting the double claims of medicine upon medical students as a professional calling and as a university faculty. The Syndicate at that time looked favourably upon the arguments employed in the memorandum, but there were differences of opinion, not only in university circles, but among all authorities on education as to the wisdom of setting up the new tripos, and the Syndicate suggested that, if instituted, it should carry on only for a probationary period of five years.

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Physiology.—At the present time the chemical part of physiology is taught in the Department of Biochemistry. In their previous report the Syndicate gave reasons why this arrangement is not altogether satisfactory, and they again recommend that provision be made for the student to learn the chemical part of physiology in the Department of Physiology, and to study in the Department of Biochemistry some of the biochemistry which is less closely related to particular branches of physiology but useful to the education of a medical student. Proposals for the teaching of pharmacology are given below, and the Syndicate suggest that there should be optional questions in pharmacology set in the physiology papers in the Natural Sciences Tripos for students who have already taken the course in pharmacology with a view to proceeding to the Final Examination for the M.B. Degree. A student who obtains honours in the Tripos should not be allowed to proceed to the Final Examination for the M.B. Degree unless he has satisfied the examiners in physiology.

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The subjects for the Second M.B. examination include also *general pathology*, and the Syndicate consider it desirable to introduce this subject, including bacteriology, as a half-subject in Part I. of the Natural Sciences Tripos, the elements of general pathology to be taught during the last year of work in anatomy and physiology. But as an examination in pathology forms part of the final M.B. examination, it is not suggested that candidates should be required to take pathology in the Tripos in order to qualify for admission to this examination. Students should not be allowed to take the course in pathology in the first year.

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[1] THE LANCET, August 27th, 1932, p. 439.

With regard to *chemistry* and *biochemistry* the Syndicate reports :—

> *Biochemistry.*—Biochemistry is at present a subject in Part II., but is not yet a subject in Part I., of the Natural Sciences Tripos. Unless a student takes Part II. of the Tripos, the only training in biochemistry which he can obtain at the present time is the biochemistry which is taught in conjunction with physiology and as part of that subject. The Syndicate are of opinion that in view of the growing importance of biochemistry in scientific research and in medical practice the present opportunities for the medical students to learn general biochemistry are inadequate. In their previous report, therefore, the Syndicate proposed that biochemistry should be a half subject in the Medical Sciences Tripos, Part I. With the concurrence of the Natural Sciences Tripos Committee they now propose that biochemistry should be a half subject in the Natural Sciences Tripos, Part I., but are of opinion that in general medical students would be well advised not to take biochemistry until at least their second year.
>
> *Chemistry.*—At the present time rather less than half the medical students take chemistry as a subject in the Natural Sciences Tripos, Part I. The reason appears to be that the subject is difficult and its scope is too great for the average student to study pure chemistry satisfactorily in conjunction with other such time-absorbing subjects as anatomy and physiology. Moreover, zoology fits in more easily with anatomy and physiology, and zoology is therefore more often taken in the Natural Sciences Tripos, Part I., than chemistry. But it is important that those medical students who wish to study chemistry should have an opportunity to offer this subject in the Natural Sciences Tripos, and the Syndicate in their previous report advocated a half subject in chemistry in Part I. of the Medical Sciences Tripos. The Committee for the Natural Sciences Tripos have now agreed, at the request of the Faculty Board of Physics and Chemistry, to propose to the University the introduction of two half subjects in chemistry : inorganic and physical chemistry, and organic chemistry. Each half subject would include general chemistry, and the two half subjects together would form the whole subject chemistry.

The opinion is recorded that students, having the time and the bent, should be encouraged to take zoology as a part subject in the Natural Sciences Tripos, while there is a further suggestion that they should be allowed to be examined in psychology in substitution for certain tests in physiology. It is considered undesirable that they should attempt to learn the elements of clinical medicine while working for the Natural Sciences Tripos. In deciding the hours allocated to each subject the Syndicate have been guided by a desire to make it possible for a good student who has passed the whole of the First M.B. examination before residence to take the Natural Sciences Tripos in three subjects at the end of his second year ; and a table is appended to show how the student who takes *anatomy* and *physiology* and attempts the Tripos in two years would spend his time.

The Syndicate are of opinion that the Cambridge M.B. Degree should normally imply a high standard in the preclinical training in science which Cambridge is peculiarly qualified to give as well as a high standard in the final examination in clinical subjects. The report runs :—

> An ordinary student should be required to have obtained honours in the Natural Sciences Tripos, Part I. or Part II., or to have attained later to an honours standard in the Natural Sciences Tripos, Part I., Examination, before admission to the Final Examination for the M.B. Degree. The Syndicate therefore propose that Parts II. and III. of the Second M.B. Examination be abolished, that Part I. of the Second M.B. Examination (Organic Chemistry) be transferred to and become Part IV. of the First M.B. Examination, and that qualifying examinations in anatomy and physiology be provided for students who have obtained honours in the Tripos but who have not offered anatomy and physiology among their subjects and for those who have obtained honours but failed to reach a qualifying standard in anatomy or physiology. The student who fails to obtain honours in the Tripos should be required to take the whole examination again, even if he has reached the qualifying standard in anatomy or physiology or in both. The scope of the Qualifying Examination in Physiology should be the same as the examination in physiology in the Natural Sciences Tripos, Part I. The Syndicate are of opinion, however, that the Qualifying Examination in Anatomy might reasonably contain a lesser proportion of scientific anatomy than the examination in anatomy in the Tripos, and suggest that this examination be modelled on the lines of the examination in anatomy as a two-unit subject in the proposed Medical Sciences Tripos of their first report.

In view of the fact that there will be no Second M.B. examination, the Syndicate proposed that in future the Third M.B. examination should be called the Final Examination for the M.B. Degree.

Of the numerous detailed recommendations of the Syndicate the following are those which show how carefully the intention has been observed to fuse the professional M.B. course with the honours course of the Natural Sciences Tripos. It will be seen that the circumstances of students who are unable to proceed in accordance with the usual pattern have been taken into consideration :—

> That biochemistry and pathology be introduced as half-subjects in the Natural Sciences Tripos, Part I.
>
> That two half subjects in chemistry be introduced into the Natural Sciences Tripos, Part I., one inorganic and physical chemistry and the other chemistry, each including general chemistry ; and that the two half subjects together form the whole subject chemistry.
>
> That the subject zoology in Part I. of the Natural Sciences Tripos be divided into two sections "A" and "B," each involving the same amount of work ; that Zoology "A" be a half subject suitable for the medical student, and that Zoology "A" be taken with Zoology "B" to make the whole subject.
>
> That the scope of anatomy as a subject in the Natural Sciences Tripos, Part I., be modified so that it consists of equal proportions of topographical anatomy and scientific anatomy—i.e., embryology and morphology.
>
> That the scope of physiology as a subject in the Natural Sciences Tripos be left unchanged, but that optional questions in pharmacology for students of medicine be set in the written papers.
>
> That a candidate for the Natural Sciences Tripos, Part I., instead of being required to take three subjects, excluding mathematics, should be required to take at least three whole subjects or at least two whole subjects and two half subjects, mathematics constituting a half subject.
>
> That the Natural Sciences Tripos, Part II., be modified by the introduction of pharmacology and psychology ; that the examination in pharmacology consist of one paper, and when the finances of the department permit, two papers in pharmacology with a corresponding practical examination and a viva voce examination, and three or two of the papers in the concurrent examination in physiology with the corresponding practical examination in physiology ; that the examination in psychology consist of two papers in psychology, a viva voce examination, and a practical examination, and two papers in the concurrent examination in physiology with the corresponding practical examination ; and that in the class-lists students be described as having taken physiology, or physiology with pharmacology when one paper in pharmacology has been taken, or physiology and pharmacology when two papers in pharmacology have been taken, or physiology and psychology.

That a student who has passed, or been exempted from, the First M.B. Examination be allowed to proceed to the Final Examination for the M.B. Degree if he has (*a*) obtained honours in the Natural Sciences Tripos, Part I., or being over the standing for honours has attained to an honours standard, and taken anatomy and physiology as subjects in the Tripos, (*b*) furnished evidence of having dissected the whole body and of having passed a series of practical tests to ensure that his dissection has been adequately and thoroughly carried out, (*c*) satisfied the examiners in anatomy in the Tripos, (*d*) satisfied the examiners in physiology in the Tripos, (*e*) attended the course in pharmacology in Cambridge, or some other course approved by the Faculty Board of Medicine, and passed the viva voce examination in pharmacology in Cambridge.

That the Qualifying Examination in Physiology be of the same scope as the examination in physiology in the Natural Sciences Tripos, Part I.; and that the Qualifying Examination in Anatomy contain a lesser proportion of scientific anatomy and a greater proportion of topographical anatomy than the examination in anatomy in the Natural Sciences Tripos, Part I.

That a student who has passed, or been exempted from, the First M.B. Examination and has obtained honours in the Natural Sciences Tripos, Part I. or II., or being over the standing to obtain honours has attained to an honours' standard, and has failed to satisfy the examiners in anatomy or physiology or both, or has not offered anatomy or physiology, or either anatomy or physiology among his subjects, be entitled to proceed to the Final Examination for the M.B. on passing the Qualifying Examination in anatomy or physiology, or if he has previously satisfied the examiners in anatomy in the Tripos the qualifying examination in physiology, provided that he has furnished evidence of having dissected the whole body and of having passed a series of tests to ensure that his dissection has been adequately and thoroughly carried out, and that he has attended the course in pharmacology in Cambridge, or some other course approved by the Faculty Board of Medicine, and passed the viva voce examination in pharmacology in Cambridge.

Further recommendations are that the student obtaining honours in any part of the Tripos may proceed to the Final M.B. examination when he has passed or been exempted from the First M.B. and the qualifying examinations in *anatomy* and *physiology* and completed a course in *pharmacology*. Further, the student who has passed or been exempted from the whole of the First M.B. examination and the qualifying examination in *anatomy* and *physiology* may proceed to the B.A. Degree on passing (*a*) the special examination in psychology; (*b*) the relevant part of the general examination; or (*c*) the examination in pathology; or (*d*) that in *biochemistry* in the Natural Sciences Tripos, Part I.

The report closes with the new regulations with regard to the thesis for the M.D. Degree.

BRITISH SOCIAL HYGIENE COUNCIL

The biennial conference of this council has been held in London this week and papers on various aspects of social health have been presented and discussed.

TREATMENT OF GONORRHŒA

Subject

Papers on the treatment of gonorrhœa were read by Dr. Gladys M. Sandes, Dr. A. J. Hawe, Dr. M. T. Morgan, and Captain W. Happer together with Dr. Rajam.

Dr. Sandes dealt especially with the prevention of complications in the female, and emphasised the great importance of accurate diagnosis, which was, she said, nearly always possible to the trained observer. When acute gonorrhœa was present it was far better to do too little than too much, and to avoid all active local treatment until the subacute stage. Complications could not always be avoided. A number of women developed pelvic parametritis or salpingitis directly after the monthly period, and when possible the patient should be kept in bed for the first few days of a period occurring during the acute or subacute stage. A suburethral abscess might be prevented by urethral massage and careful search for infected Skene's ducts. The only drug that had impressed Dr. Sandes for the acute stage was manganese butyrate; psychological treatment was also of the greatest importance.

[illegible]

Dr. A. J. Hawe considered the treatment of gonorrhœa and its complications with special reference to work on the Gold Coast, where patients usually presented themselves with complications well established. European treatment was unpopular, partly because the male African regarded the disease as a natural and rather unimportant event in his life and partly because of the brilliant results of treating yaws, which led the African to demand miracles which could not be achieved in the treatment of gonorrhœa. Moreover, the African would always try native treatment first, and damage was thereby done to many patients. Only the simplest treatment could be safely applied in the dispensaries where most of the men had to be treated, but orthodox methods were used in the hospitals. It was extremely difficult to persuade patients to stay long enough for cure. A coexisting bilharzia complicated diagnosis and treatment. None of the complications were peculiar to Africa; arthralgia was very common and might possibly be due to a re-awakening of yaws. Novarsenobillon had a remarkable alleviating effect. A routine Wassermann test would be useful. Conjunctivitis and vaginitis were also common. Dr. Hawe's conclusion was that the modern treatment of gonorrhœa was unsuitable for the uneducated African native.

Captain Happer and Dr. Rajam described conditions in South India, where the disease, they said, was mild among the native people, but in Europeans was even more intractable than at home. Doctors, however, suffered from the usual trouble—that the patients would regard disappearance of symptoms as equivalent to cure, and women especially delayed in seeking help. Treatment was on Western lines and complications were rare in the male, but it seemed to be only a question of time before a woman developed pelvic complications. Syphilis was also widespread but was a severe disease, the secondary manifestations being much graver than in Britain. Nervous complications were seen but were not common. The great problem in the treatment of venereal disease was the failure of the patient to give intelligent coöperation.

Dr. Morgan dealt with the 1924 Brussels agreement for the free treatment of merchant seamen. Each seaman suffering from venereal disease received, he said, a private and personal international card which he could carry from port to port, obtaining treatment at each and a supply of the necessary drugs for the voyage. The Stationery Office now published the list (originally drawn up by the National Social Hygiene Council) of the names and addresses of port clinics with their hours of consultation, but in future this would be published by the International Office of Public Health. As a result of the agreement, great progress had been made.

ADMINISTRATIVE ATTITUDE TO SOCIAL PROBLEMS

Dr. T. Drummond Shiels discussed the extent to which it was desirable to interfere with established social custom among primitive peoples. Recent anthropological investigation had resulted in a tendency to deprecate any modernisation of tribal life, but no people could be shut up with their past and present in a rapidly changing and developing world. Moreover, detribalisation was increasing steadily. The modern attitude was that customs for which there was obvious economic and social justification should be at any rate tolerated, and that if change was desirable it should be achieved by education and propaganda only. The French method, on the other hand, was to use every endeavour to impress the language and culture of the governing country on the native community. Probably both methods had their value, and the broad principle must be that the native peoples should have the opportunity of rising to their full stature, by combining the best in their own traditions with anything of value that the governing people had to add.

The Rev. A. G. **Fraser** described the effect on established social customs in the Gold Coast of modern knowledge and economic conditions. He mentioned an interesting discussion among African students as to which customs they should renounce and which they should keep, showing clearly that the African would choose for himself. The main business of the European was to impart an understanding of Western civilisation. If evolution and not revolution were desired, the children of another race should never be educated without seeing to it that the parents and leaders of that race had a weighty, if not a dominant share in that education.

Mr. **Herbert Anderson** read a paper on changes in the outlook on Prostitution in India. He said that the women's movement in India held the key of progress and had grown with an unparalleled rapidity and vigour. A recent Act in Bengal penalised those who profited by the immoral earnings of others, and brothels were illegal in Bombay, Burma, and Ceylon. Enlightened civic opinion in India demanded to-day a new standard of public decency.

BIOLOGICAL TEACHING

Dr. W. K. **Spencer** discussed recent progress in biological teaching, and urged the necessity for a new technique, now that biology was being taught to children and adolescents as well as to adults. Other speakers described the teaching of biology in Hong-Kong and in other colonies and dependencies, and the present difficulties and problems presented by the subject. The League of Nations' Inquiry in the Far East was the subject of a paper by Mr. S. Cohen; seamen's welfare in the ports of India was discussed by Mr. W. R. S. Sharpe and Mrs. McD. Henry spoke on the need for antenatal work among the women of the outlying districts of West Africa.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE MEANS TEST AND MALNUTRITION

Dr. John Guy, medical officer of health for Edinburgh, has made an inquiry into "the effects on health of prolonged subsistence on public assistance scales." An effort was made to get 100 families taken at random, the selection being left to the public assistance officer. In his report Dr. Guy says that the results, from a scientific point of view, were likely to be vitiated because the medical condition of the people prior to the operation of the means test was unknown, and comparison before and after was impossible. But three of the senior and most experienced medical men were detailed to carry out the examinations. These officers were the heads of the child welfare, tuberculosis, and school departments. The results are "in broad outline reasonably reliable."

Of the 100 families invited, only 77 attended. Only one family showed chronic undernourishment which could not be explained on medical grounds. In all the others, the examiners were of opinion that the undernourishment was due to the causes stated. In a case where there were four children suffering from chronic undernourishment, the consumpt unit of the family is 9*s.* 1*d.*, as compared with the average consumpt unit of 9*s.* 2*d.* for the whole of the 77 families examined, and the average amount spent on food was 6*s.* 5*d.* as compared with 4*s.* 7*d.* for the whole area. In addition, all the four children are having free meals at school. The inference is that the undernourishment is due to lack of management rather than to lack of means.

Altogether, 61 mothers presented themselves for examination. In No. 1 area, 6 have been in receipt of assistance for over three years, 2 for four years, 1 for eight years, 1 over ten years, and 2 over eleven years. In No. 2 area, 13 have been in receipt of assistance for over three years, 3 for four years, 4 for five years, 2 for seven years, 2 for eleven years, and 2 for twelve years. In No. 3 area, 4 have been in receipt of assistance for four years. In No. 4 area, 2 have received assistance for four years.

Of the 77 families examined, it is found on the evidence collected that 11 are now receiving more than they did when the husband was employed. The present position is, however, probably even more favourable in the following respects: (1) former irregularity of employment is not always fully allowed for; (2) fall in the cost of living reacts in favour of the assisted; (3) requirement of employees have to be met out of earned income, allowance being made for insurance deductions, tools, and clothing.

Dr. Guy said, so far as children were concerned, that in almost every case where undernourishment was observed, the school medical service had picked out the particular children and put them on the free-meal roll. In tribute to the fine work of the women in making ends meet, Dr. Guy said that out of the consumpt unit (or expenditure on everything) of 9*s.* 2*d.* a week, the wives and mothers had managed to get on an average food nutriment to the value of about 4*s.* 6*d.* per head.

This is a good investigation so far as it goes; but the budgets need to be checked by the many investigations already made in various cities. There are details of incomes of those in regular employment and those in irregular employment. The percentages of income spent on rent in each of the four areas were: 17·8; 18·8; 14·7; 22·27. Average percentages spent on food were: 50·6; 61·9; 50·8; 44·25. One new housing district, as illustrating the effects of re-housing on those who had formerly lived in more congested areas, showed the best group of children during the investigation. This was held to be due to changed environment and other causes.

THE LATE DR. G. R. LIVINGSTON

By the death, on June 29th, of Dr. Livingston, of Dumfries, the medical profession in the south of Scotland loses one of its most influential and gracious personalities. When he went to Dumfries in 1899 as partner to the late Dr. Smith, he already had a distinguished medical record, and had equipped himself for midwifery by a long period of residence in the Rotunda, Dublin. In his practice he carried out the elaborate technique of that institution, and found keen satisfaction in overcoming the difficulties of maintaining rigid asepsis in the homes. He was senior surgeon at the Dumfries and Galloway Royal Infirmary, one of the best provincial hospitals in Scotland, and acted as president and secretary of the Border Counties branch of the British Medical Association. Before the late war he was medical officer of the 3rd King's Own Scottish Borderers, and in the war he was mobilised as medical officer of the Dumfries and Galloway Territorials. Later he became surgeon specialist in the Eastern theatre of war at the casualty clearing station of the 52nd (Lowland) Division, and he served for some time as surgeon specialist on hospital ships. Ten years ago he was elected to the Dumfries town council, and last year he became a magistrate. As convener of the health committee he gave new life to the local health movement, and his discussion of professional and administrative affairs was always marked by calmness and fairmindedness. He leaves a wife and two children.

PANEL AND CONTRACT PRACTICE

Voluntary Pensions Insurance Scheme

It transpired at the meeting of the London Insurance Committee on June 22nd that this committee is the only one in England that has protested to the Ministry of Health against the deduction of one shilling per quarter per subscribing member for the cost of collecting premiums to the voluntary pensions insurance scheme. The committee estimated that the extra work involved in connexion with the pensions scheme started by the B.M.A. would be less than that relating to the Voluntary Defence Fund of the panel committee ; but that the deduction of one shilling per quarter per practitioner under the former scheme would, if only 1000 practitioners participated, provide an annual sum of about £200 ; whereas the charge for administration of the Voluntary Defence Fund is only 40 guineas. The committee therefore decided to make no deduction but directed that at the end of 1933 the clerk was to give an estimate to the finance subcommittee of the cost of the additional work involved. The Ministry of Health, in reply, express regret that the committee arrived at this decision without first consulting the Ministry and that . . . work of this nature should only be undertaken by bodies administering public funds on a basis which secures repayment to the bodies concerned of the expenses falling upon them in the performance of functions extraneous to their normal duties. . . . Further consideration was then given to the matter by the finance committee and a letter was sent to the Ministry to the effect that whilst they were quite prepared to assist the scheme, the charge was, in their view, too high ; threepence per quarter being ample. . . . They therefore decided to adhere to their previous decision.

A conference was then arranged between the Ministry and representatives of the committee, as a result of which the committee decided that whilst adhering to the principle set out above they would agree to make deduction for the time being without prejudice as to whether any charge should be made at all when the matter comes up for review later on.

Costly Drugs : Eucortone and Eschatin

It was reported at the same meeting of the insurance committee that one insurance doctor had ordered for one insured person eucortone to the value of £212 16*s*. for the period July, 1932, to March, 1933. Another patient was receiving eschatin between January and March, 1933, at a total cost of £33 2*s*. 3*d*. ; it was not stated whether the same doctor prescribed in both cases. Two medical members of the committee deprecated the publicity given to such figures. They thought that there was probably very little evidence that these proprietary articles were any better than others less costly. It was nothing to be proud about in these days when economy was necessary. As the prescriptions were within the regulations nothing could be done, but it was hoped that the proper authorities will eventually investigate and surcharge the doctors concerned.

A representative of the chemists also protested, pointing out that if such a practice were persisted in by all insurance doctors the fund would be bankrupt in a week. Eventually the report was withdrawn to be redrafted, but not before many lay members of the committee had expressed themselves strongly in support of allowing the insured person "millionaire" treatment. They certainly should be allowed to have anything that did them good. Their point was that the doctor attending was the only one to decide what was necessary. One speaker suggested the medical men on the committee were not in order in protesting against such charges. They had never seen the cases nor had they been in consultation about them and therefore had no right to express an opinion. It was stated that the drug had been advised by some consultant and that the doctor was giving it on his advice, but the medical members did not accept this as a satisfactory reason. The opinion was expressed that the treatment was a pure experiment on an insured person at the cost of public funds by a practitioner. The proper way to investigate the action of new drugs was in hospital where a fair number of similar cases could be treated some with and some without the drug to be tested, but that no conclusion of value could be drawn from isolated cases.

The chairman of the subcommittee, withdrawing the report, said they had only published it to counteract the prevalent opinion that insured persons could only have the cheapest drugs and the cheapest appliances. The cases quoted were within the regulations and his committee had thought that the matter should be brought to the notice of the main committee.

Opposition to Pay Beds.—At the conference of the National Association of Trade Union Approved Societies at Edinburgh recently complaint was made that "the movement to impose fees on admission into hospital and to reserve beds for paying patients is on the increase." A resolution was passed deploring the fact that "sick insured persons recommended for special treatment or operations in hospital are still subject to long waiting periods."

Royal London Ophthalmic Hospital.—The hospital is now being reconstructed and extended at a cost of £90,000. A year ago the prospect of beginning the work seemed remote, but through the King's Fund an anonymous donor offered £6000 if a similar amount could be raised, and this was accomplished. A further £25,500 is, however, still needed, and the same donor has offered an additional £4500 in the hope that the balance will be provided and the hospital reopened free from debt.

CORRESPONDENCE

THE POOR-LAW SICK WARDS

To the Editor of THE LANCET

SIR,—I should like to protest against the policy advocated by Mr. W. A. Bushell when in discussing the Municipal and Poor-law Service he says that the line of cleavage in classification is between the chronic sick and the acute sick, and that the chronic sick should be associated with the non-sick. In my view the cleavage is between the sick and the healthy, and the acute sick and the chronic sick should be placed together.

The ideal I have in mind is the large general hospital, using the word general in its proper sense, to describe a hospital in which patients suffering from almost all kinds of condition are treated. This requires an elaborate system of classification inside the institution, but the advantages of having the various classes under one administration are very great. It is now, I think, generally admitted that small special hospitals for acute cases are a mistake and that even maternity hospitals should be attached to general hospitals. There are good arguments for the inclusion of chronic patients in the same scheme. The plan is economical in every sense. Overhead expenses are spread over such a large number that they become a small factor in the cost per head, even if salaries are large enough to attract persons of good abilities. The staff can be large and diversified so that any condition that may arise can be treated by the appropriate specialist. A large staff is likely to be efficient; the members stimulate each other and the association is likely to engender those spiritual factors on which good medical work depends. Among the junior members of the staff the work can be spread out in due proportion, so that each has his share of acute and of chronic cases. The nursing can be done largely by probationers instead of "assistant nurses," who are neither fully trained nor in training, as experience in the nursing of chronic cases is most valuable training so long as it is balanced by the necessary experience in the nursing of acute cases. The conditions of general hospitals are much better for the chronic patients. It is a serious mistake to assume that chronic patients are of little importance and require no medical treatment. The condition of many of them can be greatly alleviated, or even so far cured as to allow of their discharge from hospital. It is by no means easy to secure efficient treatment for them. As a rule they are not stimulating, and their care requires higher qualities of mind than those sufficient for the treatment of the more obvious acute cases. In the general hospital from time to time a fresh eye will be turned to them; the diagnosis will be questioned and sometimes altered.

As Mr. Bushell admits, differences of opinion as to whether cases should be considered acute or chronic are common. This is of no great importance if all classes are treated in one hospital, but if the transfer of a patient to another institution is involved, these differences of opinion lead to serious friction. Every time a patient is transferred from one institution to another, an opportunity for conflict arises on the part of the patient himself, his friends, or the staff concerned, and in practical administration this is a serious matter. I am afraid that if Mr. Bushell's policy is generally applied, the result will be that we shall have set up under the councils hospitals for chronic patients with the faults of the old workhouse infirmaries.

I am, Sir, yours faithfully,

HENRY H. MACWILLIAM,

July 3rd. Medical Officer, Walton Hospital, Liverpool.

THE HOSPITAL ISOLATION OF SCARLET FEVER

To the Editor of THE LANCET

SIR,—Your leading article (June 10th) and Dr. Lillingston's letter (June 24th) deal with a matter of much practical importance—viz., the utility, or otherwise, from a public health point of view, of isolating scarlet fever cases in hospitals.

This supposed preventive measure was begun some half century ago, and it was primarily for scarlet fever—then, after small-pox, our most formidable infectious disease—that isolation hospitals (at first called "fever" hospitals) came into existence. At the beginning of this century I had just vacated the position of medical superintendent of the Birmingham City Fever Hospital, and carried out a statistical inquiry with a view to determining what results, if any, were being obtained from the hospital isolation of scarlet fever throughout the country. Returns, covering the period since hospital isolation of scarlet fever was begun, were obtained from most of the larger towns, and a comparison was instituted between those towns which had carried out the measure on a large scale—isolating a large proportion of the cases occurring—with those using the measure on a small scale or not at all. It was found that such a comparison failed to reveal any material advantage to the towns which had been using the measure most.

The results of this investigation were submitted to the Society of Medical Officers of Health in a paper entitled the Influence of Hospital Isolation in Scarlet Fever: An Appeal to Statistics (published in *Public Health*, April, 1901). The conclusions arrived at in this paper were that the hospital isolation of scarlet fever had failed to materially reduce either the attack-rate or case-mortality of the disease, and it was suggested, therefore, that an official investigation into the whole question should be instituted. These conclusions were opposed to existing teaching and belief, and the suggestion for an inquiry received little support. In due course, however—to be quite exact a quarter of a century later—the Ministry of Health did make such an investigation, and the result was embodied in a valuable report by Dr. A. C. Parsons, entitled "Some Administrative Aspects of Scarlet Fever." This was a voluminous document running into 369 closely printed pages! Possibly its very exhaustiveness accounts for the fact that it hardly received the attention and consideration it certainly deserved. Perhaps I may be allowed to quote from it.

The conclusions arrived at were cautious, but at the same time quite frank and explicit. Briefly, they were to the following effect:—

> "*Length of stay in hospital.*—It appears reasonable to suggest, therefore, that in certain hospitals and in respect of uncomplicated cases a reduction in the traditional period of detention might be attempted without disadvantage. . . . Overcrowding in hospital wards certainly increases the dissemination of septic infection among patients. . . . We cannot satisfy ourselves that the discharge of patients from hospital in the late stages of desquamation constitutes a danger to public health.
>
> "*The respective advantages and disadvantages of hospital and home treatment.* . . . The incidence of the disease to

the country generally appears to show no marked reduction as the result of hospital isolation. . . . The decline in the case-mortality and in the general mortality of scarlet fever began before hospital isolation became at all widespread and continued throughout all parts of the country irrespective of the difference in the quantity and quality of the hospital provision in these several parts.

"As regards the influence of fever hospitals or the incidence of complications, it is probably true that such complications are more quickly and more adequately treated than at home. But this is countered by others who maintain that the mixing of mild and severe cases of the disease in fever hospitals disposes to cross-infections with other diseases and to aggravation of scarlet fever infection in some who would have passed through a mild uncomplicated attack had they remained in the less dangerous company of their own family. . . .

"The number of scarlet fever patients, however, who clinically now require the benefit of hospital treatment form a very small proportion of those attacked. Never was there less epidemiological evidence nor less clinical necessity for the hospital isolation and treatment of scarlet fever patients than there is to-day, and yet the general hospital isolating-rate for the country as a whole was never so high as it is at the present time. It is a new situation and one which should be considered by the ratepayer and taxpayer alike. . . . Indeed, it may well be asked if the time has not come to consider whether much of the accommodation now set apart for mild cases of scarlet fever could not be better used for other kindred purposes. Considering their needs as patients, the subjects of pneumonia, measles, influenza, and encephalitis lethargica have often superior claims upon hospital care and treatment. . . . In truth, only a very small proportion of patients suffering from scarlet fever urgently require hospital treatment."

The report then proceeds to suggest that hospital treatment of scarlet fever should be reserved only for special cases—e.g., severe cases, or cases occurring in homes where milk-selling, clothes-making, &c., are carried on—or where there are several susceptible school-children.

As regards *disinfection*, the report draws attention to the fact that in certain towns where the practice of municipal disinfection after scarlet fever has been abandoned no bad results have been observed.

Here in Leicester we have, to a considerable extent, carried out the recommendations of the report. The average duration of stay in hospital has been brought down to 20 days—say, three weeks—without any untoward effect. The amount of accommodation reserved for scarlet fever has been reduced to a third of what was formerly considered necessary. Municipal disinfection has been much reduced—e.g., bedding is no longer removed to the steam chamber. Moreover, accommodation is now provided for other more important diseases—e.g., measles, whooping-cough, pneumonia, encephalitis, cerebro-spinal fever, erysipelas, and puerperal fever. Also, on one occasion when the hospital was required for major small-pox, all scarlet fever patients were sent home and no fresh cases admitted for some months, but without any increase whatever in the prevalence of scarlet fever.—I am, Sir, yours faithfully,

C. KILLICK MILLARD,
Medical Officer of Health.
Health Offices, Leicester, June 29th, 1933.

INTESTINAL TUBERCULOSIS

Subject

To the Editor of THE LANCET

SIR,—Dr. A. I. G. McLaughlin's paper (June 24th) provides an interesting summary of the lectures given at the Trudeau School. Having worked at Saranac Lake in the Trudeau Sanatorium subsequently to his visit, I venture to add a few comments.

After being regarded vaguely as tuberculous diarrhœa, intestinal tuberculosis was later the subject of pathological investigation, and its diagnosis has now reached a stage of precision through rœntgenological examinations. The figures of the Trudeau School bear out the claims made by Brown and Sampson for this method of diagnosis, which is based on Stierlin's law that the normal cæcum is never empty when there is barium in the ileum or transverse colon. Of a series of 54 cases positive on X ray examination, 53 showed tuberculous enteritis at operation or autopsy. Of 32 cases negative on X ray examination, 7 showed tuberculous enteritis at autopsy. It should be remarked, however, that in these 7 cases the lesions were all confined to the small intestine, and this bears out the observation that the further the lesion is from the cæcum the less likely is it to show on X ray examination.

The suggestion of cod-liver oil and tomato juice cocktails is apt to produce smiles, but McConkey's figures are sufficiently suggestive to warrant a trial. I noticed that gaseous eructations were common at first, but soon passed off. If colourless tomato juice—not easily obtainable in this country—is used, and the cocktail is served ice cold, it is not unpleasant. It should be noted, however, that Fishberg, working in New York City, has not confirmed the claims of McConkey and Smith. He says ("Pulmonary Tuberculosis," vol. ii., p. 432), "Judging by our necropsy experience it is certain that it (tomato juice and cod-liver oil) has no influence on the ulcers at all." Nevertheless some patients languishing in the exile of the sanatorium develop a dread of "IT," and a simple method of treatment which offers possible protection seems justifiable. The mode of action of the cocktail treatment is unknown, but it is interesting to note that the factor common to heliotherapy, parenteral calcium chloride, and vitamin therapy is an effect on calcium metabolism.

I am, Sir, yours faithfully,
Liverpool, June 30th, 1933. C. ALLAN BIRCH.

EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS

To the Editor of THE LANCET

SIR,—Dr. J. A. Murray's article in your issue of June 17th is an apologia for the experimental method in the field of cancer research. In its essence, and by the fact that it ignores evidence derived from human carcinoma, it appears as an assertion of the dominance of the experimental method over the slower methods of observation. It excludes entirely from consideration clinical and histological approaches to the same problem. Dr. Murray has doubtless wished to confine his paper to matters upon which he is the leading authority and concerning which he has first-hand knowledge, but there are other witnesses to be called on this question, and judgment must not be allowed to go by default. A reader of Dr. Murray's paper must not mistake it for the summing-up. It is the deposition of an important witness in defence of the experimental method of approach to the cancer problem, a method which has yielded important results and will yield more, but one which must not be exclusively exalted as the sole approach to the truth.

Reading between the lines, Dr. Murray would appear to be himself by no means satisfied with the results of experimental cancer research to date. He is only able to claim that the method can reproduce the clinical phenomena long familiar in human tar cancer. He admits that in other forms of human cancer no definite irritant can be demonstrated, but thinks that "it is reasonable" to accept the facts of experimental carcinogenesis as a model of the genesis

Dr. Robert [illegible] Library
[illegible] Medical College
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[illegible] LANCET

urgently needed because of its growth from 55 students in 1915 to 320 in 1932, and a factor which helped towards this decision was the desire to help to alleviate the evil of unemployment in South London. Unfortunately, however, a building debt of approximately £5000 remains to be paid off.

The buildings, whose exterior is illustrated in Fig. 1, consist of a teaching museum, a dental museum, a biochemical research laboratory, lecture rooms of a size suitable for final tutorial and similar classes, a number of small research rooms, common rooms for students, and a new refectory hall. The museum (Fig. 2), while allowing a complete general view, is arranged in separate bays for classification purposes and for the instruction of students in the various branches of medicine, surgery, and obstetrics. The roof is so arranged that a maximum of light is obtained without direct sunlight. The biochemical research laboratory has been constructed on an additional floor over the original students' pathological laboratory, and the work in it will be run in conjunction with the reconstructed diabetic clinic of the hospital. The dental museum will provide all the accommodation necessary for the increasing number of specimens which are being collected by a growing dental school. The lecture rooms will provide much-needed accommodation, and the small research rooms will be very valuable for the individual work of members of the staff. The new common and writing rooms have been rendered necessary by the growth of the school, and these, together with the refectory hall, will provide ample accommodation. The refectory hall is provided with a stage, and valuable use can be made of it for special lectures and meetings, as well as for such events as the annual opening ceremony of the winter session.

It is anticipated that the buildings will provide for the requirements of the school for a good many years, and the architects (Messrs. W. A. Pite, Son, and Fairweather) and the builders (Messrs. Foster and Dicksee, Ltd.) are to be congratulated upon the design and execution of the work.

OBITUARY

JOHN FORD ANDERSON, M.D. Aberd.

BY the death of John Ford Anderson on June 29th the profession has lost a distinguished veteran. He was born at Boyndie, Banff, Scotland, in 1840, a son of the manse, his father being the Rev. A. Anderson, LL.D. He received his education at the Universities of Edinburgh and Aberdeen, and qualified L.R.C.S. Edin. in 1861, proceeding to the M.D., C.M. Aberd. two years later. As was common in those days among the ambitious students he took out a course of post-graduate work in Paris, and later settled in the North of London in general practice. He was the first lecturer on midwifery at the London School of Medicine for Women, an appointment which he accepted in 1875, and held for nearly 20 years. In the meantime his practice in Hampstead developed, and while private patients multiplied he found time to discharge many official posts. He was for long periods medical officer to the post office at Hampstead and to the Haverstock Hill provident dispensary, and physician to the Farringdon Dispensary and Lying-in Charity. He was particularly interested in the management of provident dispensaries, and wrote on their objects and practical utility, exemplifying the latter in his personal work. He was a member of the metropolitan counties branch of the British Medical Association for some 50 years, and was president of the branch in 1909. To the end of his long life he preserved a keen interest in the development of medical science and the organisation of his profession.

THE LATE SIR WALTER FLETCHER

THE following appreciation of the late Sir Walter Fletcher's service to international medicine has been received from Dr. Thorvald Madsen, director of the Statens Seruminstitut, Copenhagen:—

"Among the many who have felt the much too early death of Sir Walter Fletcher as a very painful loss must also be counted the Health Organisation of the League of Nations. In a variety of ways Sir Walter Fletcher gave us advice and assistance of important consequence, and I would particularly emphasise the interest which from the very first he took in the work that is being done by the Permanent Commission on Biological Standardisation. As you will be aware, some of its most important activities are concentrated in the National Institute for Medical Research at Hampstead, under the leadership of Sir Henry Dale and his highly efficient staff, and these activities have always had the advantage of Sir Walter Fletcher's active and able support.

"For these reasons the Health Organisation feels deeply indebted to him and will always cherish his memory."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 24TH, 1933

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 8 (last week 18); scarlet fever, 1994 (last week 1771); diphtheria, 773; enteric fever, 37; acute pneumonia (primary or influenzal), 673; puerperal fever, 48; puerperal pyrexia, 79; cerebro-spinal fever, 28; acute poliomyelitis, 29; acute polio-encephalitis, 1; encephalitis lethargica, 11; dysentery, 17; and ophthalmia neonatorum, 95. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on June 27th–28th was as follows: Small-pox, 39 under treatment, 1 under observation (last week 49 and 1 respectively); scarlet fever, 1771; diphtheria, 1610; enteric fever, 14; measles, 477; whooping-cough, 354; puerperal fever, 24 (plus 7 babies); encephalitis lethargica, 244; poliomyelitis, 0; "other diseases," 190. At St. Margaret's Hospital there were 19 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there were no deaths from small-pox, 3 (0) from enteric fever, 29 (0) from measles, 3 (0) from scarlet fever, 13 (1) from whooping-cough, 22 (3) from diphtheria, 39 (7) from diarrhœa and enteritis under 2 years, and 18 (1) from influenza. The figures in parentheses are those for London itself.

The three deaths from enteric fever were distributed between Barnsley, Newcastle-on-Tyne, and St. Helens. Measles caused 8 deaths in Liverpool and 3 each in South Shields and Walsall. Four of the fatal cases of diphtheria were in Liverpool; there were also 3 in Kingston-upon-Hull and 3 in Brentford and Chiswick. Five deaths from diarrhœa and enteritis were reported from Liverpool, 3 from Brentford and Chiswick, and 2 each from Bradford, Manchester, Oldham, Birmingham, and Stoke-on-Trent.

The number of stillbirths notified during the week was 269 (corresponding to a rate of 39 per 1000 total births), including 41 in London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

In the House of Lords on Wednesday, June 28th, the Commons amendments to the Pharmacy and Poisons Bill were agreed to.

The Unemployment Insurance (Expiring Enactments) Bill and the Samaritan Free Hospital for Women Bill were read the third time and passed.

The Royal Assent was given to a number of Acts, including the Finance Act, the Pharmacy and Poisons Act, and the Unemployment Insurance (Expiring Enactments) Act.

On Thursday, June 29th, in the House of Lords, Lord Jessel withdrew the University Spurious Degrees (Prohibition of Use and Issue) Bill. He explained that his reason for withdrawing the measure was that considerable objection had been taken to it on account of faulty drafting. Leave was granted to withdraw the Bill, and a new Bill on similar lines was introduced and read a first time.

Local Government Officers' Superannuation

On Wednesday, June 28th, the House went into Committee on the Local Government and Other Officers' Superannuation (Temporary Provisions) Bill. Sir D. Herbert (Chairman of Committees) was in the chair.

On Clause 1 (Certain reductions in remuneration to be disregarded for purposes of superannuation),

Sir Henry Jackson moved an amendment to leave out "April 1932" and insert "October 1933." He said he thought it would be inequitable that officers whose remuneration was reduced for the first time on account of national economic conditions subsequent to April 1st, 1932, should be excluded from the provisions of this Bill. The Bill ought to cover cases in which reductions occurred for the first time since Oct. 1st, 1933.

Mr. Shakespeare (Parliamentary Secretary to the Ministry of Health) said he could not accept the amendment. The object of this Bill was to make legal understandings entered into between local authorities and their employees, which were in fact illegal, but which at the time were made in good faith. They had chosen the period between Sept. 1st, 1931, and April 1st, 1932, because by that time the various associations had been informed by the Ministry that if any further agreements were made they were ultra vires, and that therefore local authorities who made such agreements after that date did so in the knowledge that they were breaking the law.

Mr. Greenwood said that this bombshell fell on local authorities towards the end of August, 1931. A large number of officers and servants agreed to a reduction of their salaries on condition that arrangements were made to deal with the problem of superannuation. If it was admitted that there was a case for Parliamentary intervention where local authorities acting in good faith had broken the law, it seemed to him that six months was too short a period. He hoped the Government were prepared to be reasonable on this matter, and allow a year for the completion of negotiations which were started as a result of the Government's policy.

Mr. Isaac Foot said he was sure it was the desire of the Government in carrying through this Bill to leave no rough edges.

Mr. M. Beaumont said that any local authority which embarked on these arrangements after the date proposed by the Government knew very well that they were doing an illegal action, and they ought not to be safeguarded.

The amendment was negatived.

Mr. Greenwood moved to insert after the word "understanding" in the clause the words "with the parties concerned." He said that he had an amendment later on to make it clear that officers or servants to whom the Asylums Officers' Superannuation Act, 1909, applied should be brought within the Bill. He understood that the Ministry of Health were prepared to consider the inclusion of these officers in the Bill, but there was some doubt as to whether an understanding arrived at between the Mental Hospitals' Association and those employed at mental hospitals was a bona-fide understanding within the terms of the Bill. Medical officers and nurses at mental hospitals were prepared to accept a reduction of salary when the Government came into office, but they naturally desired to protect their superannuation rights, and what he regarded as an understanding was reached. The employing authority, and those who served the employing authority, had asked to discuss the question with the Minister of Health, but that he had refused. If the spirit of this Bill was to operate the Government ought to include within its scope people in the mental hospitals' service. He hoped that the Parliamentary Secretary to the Ministry of Health would give an assurance that the understanding, as he regarded it, reached between the mental hospitals' authorities and their employees would be regarded as an understanding within the terms of this Bill.

Mr. Shakespeare said he thought he could assure the right hon. gentleman that the asylum officers would be treated in exactly the same way as anybody else. They would be included in this Bill if in fact an understanding was made in good faith. He presumed that an understanding would have been reached between the visiting committees and their officers, and if that understanding was made in good faith the officers would come within this Bill. The right hon. gentleman's amendment would make it far more difficult for them to come in.

Replying to further questions by Mr. Greenwood,

Mr. Shakespeare said that every fact would be taken into consideration. If agreements had been reached between national bodies that, of course, would be evidence that there was an understanding; but local agreements where they existed would be considered too in deciding whether individual persons came under the Bill.

Mr. Greenwood said that Mr. Shakespeare had pushed the responsibility back on to the individual visiting committees. His (Mr. Greenwood's) original case was that the Mental Hospitals Association, which represented the majority of mental hospital authorities in this country and certain national bodies, including the British Medical Association, did arrive at an understanding. Now they were told by the Parliamentary Secretary to the Ministry of Health that it would be a matter for each visiting committee and he wanted to know whether an agreement was an agreement when it was national, or only when it was local. The answer that it might be both did not help very much. If Mr. Shakespeare would look into this matter before the Report stage of the Bill he would not press the point any further at that stage.

The amendment was withdrawn.

Captain Elliston moved an amendment the terms of which he said would enable local authorities to reconsider their position in regard to the Bill, and if it was right and proper adjust the superannuation cut in the case of those officers whose pensions they wished to secure. He had heard something of the circumstances in which the Association of Mental Hospital Workers were placed. On the publication of the original memorandum of the Ministry of Health, No. 1122, in September, 1931, that Association met to see whether they could suggest any reduction, and consulted the British Medical Association and the Royal Medico-Psychological Association, and other bodies interested, and submitted a scale of reductions which was welcomed by the visiting committees. The Ministry of Health pointed out that subject to the amendment of the Asylum Workers' Superannuation Act the pensions must be based on the actual salary paid. The Association passed on that warning to the local authorities, and out of 66 hospitals outside London, advised by that Association, 9 made no reductions and were therefore not affected by this Bill; 24 of the hospitals, anxious to safeguard the pension rights of their officers, and seeing what other authorities were doing, continued, in spite of the Ministry's warning, to make superannuation deductions based on the original scale; 27 other hospitals, who wished to do the right thing, acted on the advice of the Ministry. The position under the Bill would be that those hospitals which defied the Ministry were to be whitewashed or indemnified, while the 27 which felt themselves bound to act in accordance with the Ministry's advice would be outside the terms of the Bill. This would be a big injustice, and he hoped that his amendment would be accepted.

Mr. SHAKESPEARE said he was particularly sorry not to be able to accept the amendment because he knew the interest which the hon. Member took in these cases. The amendment, however, cut at the principle of the Bill which was non-contentious. The amendment would bring in cases of cuts which were not made on the understanding that they should not affect pensions, but were made with the knowledge that the cut or lower pay must be followed by lower pensions. Another reason which made the amendment unacceptable was that the principle was applied first to personal pension which was against the principle of all Superannuation Acts.

The amendment was withdrawn, and the Bill passed through Committee and was reported to the House.

Department of Mines

On Thursday, June 29th, the House of Commons went into Committee of Supply on the Civil Estimates, Sir D. HERBERT in the chair.

On a vote of £204,079 for the salaries and expenses of the Department of Mines,

Mr. E. BROWN (Secretary for Mines) said the estimate showed a decrease of £14,516 compared with the last year's figures. Dealing with the questions of health and safety in the mines, Mr. Brown said that they gave rise to two problems—that of underground lighting and that of minimising the casualties due to falls of roof. The fatal accident rate rose slightly from 859 in 1931 to 881 in 1932, and serious non-fatal accidents fell from 3305 in 1931 to 3212 in 1932, when the figure was the lowest on record. It was difficult to see how effective and general action could be taken in regard to underground lighting apart from general regulations. With regard to falls of roof, the Department would do everything possible to see that the research work which had been carried out bore fruit as soon as possible.

The debate on the vote was adjourned.

A Prisoner's Mental Condition: Criticism of Medical Officer

On Friday, June 30th, the House of Commons went into Committee of Supply on the Civil Estimates. Sir D. HERBERT (chairman of committees) was in the chair.

On a vote of £5,141,915 to complete the sum necessary for the salaries and expenses of the police in England and Wales,

Sir JOHN GILMOUR (Home Secretary) said a large part of the time of the police was taken up with minor offences, such as traffic offences, most of which were connected with motor-cars. In fact these accounted for 43 per cent. of all the criminal proceedings taken in 1931. Except for these traffic offences there had been in recent years a decrease in almost all classes of non-indictable offences, including drunkenness, assault, begging, sleeping-out, and offences against the poor-law. It was gratifying that there was, broadly speaking, an improvement in the general social conditions and social behaviour. There had also been a decrease in the gravest forms of crime, such as those involving the taking of life. There had been no increase over the past 20 years. The total number of persons killed in traffic accidents in Great Britain in 1932 showed a slight fall, being 6667 as against 6691 in the preceding year. The total number of persons killed or injured was 213,117, as against 208,810. There was a drop of nearly 200 in the number of persons killed in accidents attributed to mechanically propelled vehicles; this, on the other hand, was nearly counterbalanced by the increase in the number of persons killed in accidents attributed to pedal cycles. It was clear that a great majority of these accidents must have been preventable by the exercise of greater care on the part of motorists and pedestrians. After further debate the vote was withdrawn.

On a vote of £445,063 to complete the sum necessary for the salaries and expenses of the Prison Commissioners and of the Prisons in England and Wales,

Brigadier-General SPEARS called attention to the case of Thomas Parker, aged 34, who died in Winson Green prison on June 2nd. This man, who was destitute, was arrested for sleeping out and was sent to prison for 14 days by two magistrates of the Coleshill Bench. Parker went to prison quietly and gave no trouble, but a warder noticed that he would not keep his cell door closed, although repeatedly told to do so. During the second night of his imprisonment he was disturbed and agitated and kept on shouting that he had committed no crime and that he must get out of gaol, even if it was in a coffin. At exercise next morning Parker fell out, said he was done, and from then onwards he behaved like a man in a frenzy. The acting governor sentenced him to three days solitary confinement on bread and water. The prison doctor, at the inquest, stated he noticed in the warder's report that he had to close Parker's door on certain occasions and that Parker seemed to have had some reluctance to having the door closed. Brigadier-General Spears quoted from a newspaper the statement of the medical officer that Parker might have been suffering from claustrophobia, though he had given a certificate that he was in a fit condition to undergo solitary confinement, and he (Brigadier-General Spears) pointed out that the doctor's evidence was in contradiction to the answer which Mr. Hacking (Under-Secretary to the Home Office) had given to him (Brigadier-General Spears) the other day, when questioned about Parker's case. To make matters doubly sure he also consulted a great London alienist and laid the evidence he had before him. The alienist said that there was no doubt that this man was suffering from some form of claustrophobia. The acting governor of the prison, armed with the doctor's certificate, condemned Parker to three days solitary confinement. He was no doubt applying the regulations and carrying out his orders as a non-commissioned officer would do, inexorably and mechanically. Some men would have taken into consideration the fact that this man's crime was only that of not having a roof above his head, and would have investigated what the mental condition of the man was. During the short journey from the adjudication-room to the silent cell Parker was so injured that within a quarter of an hour or so he was dead. No one actually saw him fall. The warders released his arms for a moment and Parker took a flying jump forward down a flight of stone steps. He landed at the foot of the steps in a spread-eagle fashion and then struggled up on his knees. He received a terrible injury at the back of the head behind the ear. He was taken to the cell and the next time he was looked at it was found that he was dead. He (Brigadier-General Spears) begged the Government to consider whether this story did not lead to the conclusion that the administration of Winson Green prison required investigation. Above all did they not think that the Vagrancy Act ought to be repealed?

Sir FRANCIS FREMANTLE said that it must be realised that the governors of prisons had an immensely difficult task. They had to consider the real facts of the case. Brigadier-General Spears had ked of claustrophobia; but he (Sir F. Fremantle) agined that everyone would recognise the danger carrying things too far if that description were plied to the objection of every prisoner to being it in a cell. Medically speaking the word claustro- obia, like many of the terms used in psychological edicine, had an indefinite meaning; its general eaning was very clear, but it was indefinite. One uld not define it clearly except by a general assess- ent of the individual's honesty in explaining his elings, being able to analyse them himself, and to mmunicate them to the medical man examining m. It was extremely difficult to be sure of that ndition in a person. There was the greatest danger bringing claustrophobia into legislation, if only cause there was some claustrophobia in the case of ery prisoner. What was required was a very close pervision of prisoners, especially those of nervous mperament, during the whole time they were in ison without waiting until they complained of one rticular trouble or another.

Earl Winterton asked whether Sir F. Fremantle ought it was probable that an injury of such a kind that which caused this man's death would not have een noticed by two or three people who were anding near when he fell.

Sir Francis Fremantle said that it depended tirely on the nature of the injury. In the Army e commanding officer was responsible for the health his troops, and not the medical officer. The ommanding officer who was responsible had to ke the advice of the medical officer and decide how r he would accept that advice. What he (Sir . Fremantle) wanted to know was whether the overnor of a prison was in a similar position, or did e think that it was a question solely for the medical fficer? He thought that the only proper rule of pervision, whether in the prisons or in the army, as for the layman to be responsible, though he might ke the advice of the medical officer. He was afraid hat there were some prisons—Winson Green prison ight be one of them—where the governors did not ecognise it as their duty to be in active and constant ouch with medical officers and to give the medical fficers as much latitude as possible in carrying out heir difficult job of supervising the condition of he prisoners and reporting upon it. Was there any cheme for insisting on some kind of training of rison governors in the main outlines of the care of ealth and mentality? The new line of thought which ad developed during the last 10 or 20 years as to he necessity of understanding the physical and mental ealth of individuals before efficient work or behaviour ould be expected from them was a line of progress hat must be brought into our prison management. The case before the Committee offered a good opportunity to raise questions which had a far wider bearing.

Mr. Hacking (Under-Secretary to the Home Office) said that his information was that Parker, after he got into prison, was unruly and almost violent practically the whole of the time. It was true that the behaviour of this man might have been an indication of claustrophobia; but the prison doctor said quite clearly that in his opinion this complaint was not the cause of the man's death. Cases of this kind were not at all uncommon, and it was exceedingly difficult to diagnose. The medical officer did not state that the prisoner suffered from claustrophobia, nor did he suspect it, nor was there any reason to suspect it. With regard to Sir F. Fremantle's question the governor of any prison was of course responsible for the health of the prisoners, but naturally he accepted the advice of one who knew a great deal more about health matters than he could possibly do, and he was always guided in such matters by the prison doctor. A governor, for example, did not sentence a prisoner to punishment unless the medical officer certified that the prisoner was fit for the punishment.

Sir Francis Fremantle asked whether the governor similarly gave weight to the opinion of his medical officers as regarded the mental psychology of the prisoners.

Mr. Hacking said that certainly the governor of a prison did so, as was done in this case. The evidence on which the mental specialist consulted by Brigadier-General Spears based his opinion was apparently brought to his notice after Parker was dead. It was not previously in the possession of the prison medical officer who on hearing it agreed that claustrophobia was a possible explanation of Parker's frenzy. But he had previously had no reason to suspect such a condition. The coroner's jury came to the decision that the cause of death was accidental; there was no rider and no blame was attached to anyone. While having every sympathy with the man's relatives he (Mr. Hacking) could not see that any further action was necessary or desirable.

Sir Francis Fremantle: Are there any qualifications demanded on the appointment of governors or deputy governors with regard to seeing that they have some elementary knowledge of health conditions, sanitation, and psychology?

Mr. Hacking: Not as a general rule, although some governors have special knowledge. Continuing, the hon. Member said that he did not think it would be right to lay it down that a man should be disqualified from taking a position of this sort because he did not possess special knowledge of medical subjects.

Sir Francis Fremantle said he did not ask for special knowledge.

Mr. Hacking said that after all the governors had advisers, the medical officers, and they were right in accepting the advice of a man who had real specialist knowledge, especially in cases of this kind.

After further debate, progress was reported.

HOUSE OF COMMONS

WEDNESDAY, JUNE 28TH

Committees and Commissions

Mr. Hore-Belisha (Financial Secretary to the Treasury) informed Mr. Groves that, excluding Standing and Statutory Committees, &c., there were 23 Committees and Commissions still sitting. Among them were the following: Committee for the codification of the law relating to income-tax (appointed October, 1927); *Committee to inqure into the recruitment, &c., of Local Government officers (appointed September, 1930); *Committee to inquire as to the inclusion of turpentine poisoning and papilloma among industrial diseases entitling to workmen's compensation (appointed November, 1930); Committee to consider the grouping of enactments in relation to Local Government and Public Health law consolidation (appointed December, 1930); *Committee to investigate the cause of the shortage of officers and nurses in the medical and dental branches of the defence services (appointed May, 1931); Committee to make recommendations as to the future development of garden cities (appointed July, 1931); *Committee to consider the causation of mental disorder and the value of sterilisation as a preventive measure (appointed June, 1932); Committee to inquire into precautions against overwinding in mine shafts (appointed February, 1933); *Committee to consider methods of securing proper standards of fitness in working-class houses and promoting the supply of such houses (appointed March, 1933).

The committees marked with an asterisk might be expected to present their reports in the course of the present year.

Dummy Corpse as Warning to Motorists

Sir Gifford Fox asked the Minister of Transport whether his attention had been called to the action of the police at Reigate in exhibiting two overturned motor-cars and a dummy corpse as a warning to motorists; and whether, in view of the possibility that such action might make many new drivers nervous and thereby cause more accidents than it would prevent, he would discourage such action in future.—Sir JOHN GILMOUR replied: I have obtained a report from the chief constable of Reigate, who informs me that the exhibition in question was organised by the local branch of the National "Safety First" Association, of which the chief constable is hon. secretary. The exhibition formed part of an extensive programme of safety first displays held in connexion with the safety first week at Reigate from June 5th to 10th. The exhibition consisted of one or two old motor-cars placed at certain sites off the main road on which posters and other matter advertising the safety first week were fixed. A similar exhibition was given last year, and the chief constable states that no reports were received that anyone was alarmed or shocked by the display. This year a firm of press photographers, without authority and before the representation was complete, used the opportunity to take and publish a photograph of a person lying near the scene and posed as if injured as the result of the accident. This was no part of the exhibition organised by the Association, and I join with my hon. friend in deprecating the action taken.

THURSDAY, JUNE 29TH

Ambulance Service and Boundary Restrictions

Mr. DORAN asked the Minister of Health if he was aware that local arrangements for the use of an ambulance did not permit an ambulance to render aid, even in the case of a serious accident, in an adjoining district; and if he would call a conference of all the metropolitan and local authorities concerned with a view to legislation to put an end to the present conditions which endangered the life of an injured person.—Sir E. HILTON YOUNG replied: I am not aware that the position generally throughout the country is as stated in the first part of the question. I am causing inquiries to be made into the circumstances of the case recently reported in the press in which difficulty arose, and I will consider whether any general action is necessary.

Rents of Council Houses

Mrs. WARD asked the Minister of Health whether he was aware that a disparity existed in many local government areas between the rents charged by the local authorities for houses recently erected by them and for those erected by them some time ago; and whether, with a view to removing the dissatisfaction caused thereby, he would consider the desirability of issuing a departmental circular to local authorities recommending that by a method of pooling, or otherwise, they should render such rents as uniform as could practically be done.—Sir E. HILTON YOUNG replied: The reply to the first part of the question is in the affirmative, the disparities resulting in part from variations in building cost and in part from differences in the conditions prescribed by the several Acts under which subsidies are payable. Such a pooling of rents as is suggested in the second part of the question would involve the raising of rents which are at present low as well as the reduction of rents which are at present high, and in view of the needs of the less well-paid working-classes I should not be prepared to encourage a general arrangement of this kind. Circular letters have already been issued to local authorities which deal with this matter.

Motor Accidents and Emergency Treatment

Mr. JOEL asked the Minister of Transport whether he would consider raising the charge for motor driving licences from 5*s*. to 7*s*., earmarking the extra 2*s*. for hospitals to reimburse them for the cost of road accidents; and whether he would in any case investigate the financial effects of such a proposal.—Lieut.-Colonel HEADLAM (Parliamentary Secretary to the Ministry of Transport) replied: Proposals on the lines of that contained in the first part of my hon. friend's question have been made from time to time, and most recently in a debate in the House of Lords on June 22nd, on the occasion of the second reading of the Road Traffic (Emergency Treatment) Bill, as a result of which the Bill now stands referred to a Select Committee. My hon. friend will carefully consider any report that the Committee may make.

Causes of Colliery Explosions

Mr. TOM SMITH asked the Secretary for Mines how many public inquiries were held by his department during 1930, 1931, and 1932 into the loss of life due to explosions; and how many prosecutions were instituted as a result of the inquiries.—Mr. ERNEST BROWN replied: During the years 1930, 1931, and 1932, 11 public inquiries were held, under Section 83 of the Coal Mines Act, 1911, into the causes of colliery explosions. Such inquiries are held, as the Act directs, for the purpose of determining the cause and attendant circumstances of the explosion. Any necessary investigations as to alleged offences against the Act are made by H.M. Inspectors, whether a public inquiry is instituted or not; and in respect of one of the explosions which was the subject of a public inquiry, legal proceedings were taken against the colliery management.

Houses Completed with State Assistance

Mr. PRICE asked the Minister of Health if he would furnish a return showing for the years ended March 31st, 1932 and 1933, separately, the houses completed by local authorities with State assistance, by private enterprise with State assistance, and without State assistance, respectively.—Sir E. HILTON YOUNG replied: The following is a statement showing the number of houses completed in England and Wales during the years ended March 31st, 1932, and March 31st, 1933:—

Year ended—	Number of houses completed.*		
	With State assistance.		Without State assistance.
	By local authorities.	By private enterprise.	
March 31st, 1932 ..	67,576	2,333	130,903
„ „ 1933 ..	54,566	2,493	143,437

* Excluding houses of a rateable value exceeding £78 (£105 in the Metropolitan area).

MONDAY, JULY 3RD

Air Ambulance Service in the Highlands

Mr. KIRKWOOD asked the Secretary of State for Scotland if he would bring before the Department of Health the advisability of organising an air-ambulance service for the conveyance of urgent medical and surgical cases from the Hebrides and Western Isles to the hospitals and infirmaries in Glasgow; and if he would consider the advisability of arranging a scheme with the Saint Andrews Ambulance Association and the Highland Medical Service, so that there could be coöperation.—Mr. SKELTON (Under-Secretary of State for Scotland) replied: The suggestion contained in the question involves a number of practical difficulties which would require most careful consideration before its adoption.

DISPOSAL OF LONDON REFUSE.—Speaking on June 30th at a luncheon of the Advisory Committee on London Refuse, Sir Hilton Young (the Minister of Health) said that he must strike a warning note about the hills of refuse which were being accumulated on the outskirts of London at the rate of about a million tons a year. Unless the work was properly done, these hills of refuse would become a sanitary danger. In the past the work had not been properly done in all cases; he could not say that it was being properly done in all cases even now. There was also room for improvement in the methods of collection. The primary responsibility was with the 28 metropolitan boroughs and the London corporation, and they had to coördinate their work with the authorities of the districts round London where the refuse was tipped. Most certainly some coördinating authority was necessary, and the hope was that the advisory committee would achieve the necessary improvements by voluntary coöperation.

MEDICAL NEWS

University of Oxford

At a recent examination for the degree of M.Ch. Mr. A. E. Porritt was successful.

May Fellowship and Readership in Medicine.—The electors to this readership have appointed Dr. Alexander Macdougall Cooke as May Fellow and reader in medicine to hold office until 1935.

University of Birmingham

At a congregation held on July 1st the following degrees were conferred :—

M.D.—F. H. Healey.

Ch.M.—William Gemmill and Bertram Lloyd.

M.B., Ch.B.—(Second-class Honours): D. M. Brown and C. S. Whitehouse (distinction in surgery). Pass degree : H. C. Aston, G. R. Clarke, A. C. Edwards, R. E. P. Field, J. G. H. Frew, Albert Hemming, James Montgomerie (distinction in Medicine). Emma D. N. Part, F. J. Rutter, W. P. Stevens, and J. L. Whatley.

Dr. C. W. Forsyth has been appointed lecturer in mental diseases, Dr. C. F. V. Smout demonstrator in anatomy, and Mr. R. K. Debenham lecturer in general surgery to dental students.

University of Edinburgh

Among those who received the honorary degree of LL.D. at the graduation ceremonial of this University on June 30th was Sir Henry Dale, director of the National Institute for Medical Research and secretary of the Royal Society ; Sir Alexander Houston, director of water examinations for the Metropolitan Water Board ; and Sir Hugh Arthur Rose, chairman of the General Board of Control for Scotland. The degree of D.Sc. was conferred on Mr. B. P. Wiesner, Ph.D.

University of Glasgow

On June 30th the degree of Ph.D. was conferred on Dr. W. A. Burnett.

University College, Cork

At recent examinations the following candidates were successful :—

M.D.

J. D. O'Riordan and R. C. Webster.

M.B., B.CH., B.A.O.

J. J. Linehan (Second-class Honours), J. S. Kelleher, M. F. Kelleher, and J. G. O'Sullivan.

Part I. only.—C. J. Cantillon, P. J. Geoghegan, H. L. Lentin, and J. P. O'Leary.

Part II. only.—Michael Flavin.

D.P.H.

Mary C. O'Connell.

A Conference on Cremation

The second joint conference of the National Association of Cemetery and Crematorium Superintendents and the Federation of Cremation Authorities in Great Britain will be held in London from July 10th to 13th. Lord Horder will give the opening address, and on the last day of the conference Dr. W. M. Willoughby, medical officer of health for the City of London, will preside. The secretary of the conference is Mr. C. L. Hilton, Brockley Cemetery Office, London, S.E. 4.

British Post-graduate Medical School

As announced in our last issue the foundation-stone of the new buildings of this school, at the London County Council Hospital, Ducane-road, Hammersmith, will be laid on July 17th by the Chancellor of the Exchequer. The scheme of which they form part was recommended by the Post-graduate Medical Education Committee appointed by Mr. Neville Chamberlain in 1925. The Government have agreed to contribute a maximum of £100,000 for the building and equipment of the school, and the L.C.C. has agreed to incur an equivalent expenditure on such developments and adaptations of the hospital as are found to be necessary at the present time in view of its forthcoming association with the school. The Government have also undertaken to provide in due course for annual grants towards the maintenance of the school as part of the University of London. The chairman of the governing body is Sir Austen Chamberlain.

Lincoln's Inn

Among those called to the Bar on June 28th was Dr. L. F. Beccle.

Eugenics Society

At a meeting of this society, to be held at 5.30 P.M. on Tuesday, July 18th, at the rooms of the Royal Society, Burlington House, Piccadilly, London, W., Mr. A. M. Ludovici will speak on Eugenics and Consanguineous Marriages. Sir Humphry Rolleston will preside.

Fellowship of Medicine and Post-Graduate Medical Association

There will be a demonstration of X ray films by Dr. Peter Kerley on Thursday, July 13th, at 4 P.M., at the Medical Society of London, Chandos-street, Cavendish-square, W. Three-quarters of the time will be given to radiograms of the chest and heart, and a quarter to radiograms of the intestinal tract. In the absence of special courses attention is called to the individual clinics which are available daily by special arrangement with the Fellowship. A list of these clinics can be obtained on application from the secretary of the Fellowship, 1, Wimpole-street, London, W.1.

R.M.B.F. Society of Ireland

The annual meeting of the Royal Medical Benevolent Fund Society of Ireland was held in Dublin on June 28th. The report of the council showed that there was a slight increase in the number of subscribers but a decrease in the amount of the subscriptions. Owing to this decrease it had been found necessary to reduce the several grants by 10 per cent. Many speakers commented on the apathy of a large number of medical men throughout the country. In some counties almost every medical man subscribes, while in others, and those not the poorest, there are only one or two. Many of the appeals that come before the council are pathetic in the conditions they disclose (writes our Dublin correspondent), and even the 10 per cent. reduction in the grants this year will cause hardship to many aged medical men or the dependents of medical men. Ninety-four grants were made during the year, the recipients being 69 widows of medical men, 17 orphans, and 8 medical men.

Central Middlesex County Hospital, Willesden

In declaring open the new children's wing and electrical department of this hospital on June 30th, Sir George Newman said that 25 years ago it would have been impossible to have found such a hospital outside Germany or America. He complimented the guardians and the county council on the work they had done in transforming a poor-law hospital into a public hospital serving a great community. He related how the poor-law hospitals had grown out of the poor-law infirmaries initiated by King Alfred for the sick and leprous poor, and how now they in their turn are being transformed into what he described as hospitals "designed by the people of the people for the people." The new wing is three storeys high, and in addition to 30 separation wards it contains 12 main wards, each for 6 beds, and 3 day rooms. All the windows and the verandah on the ground floor are glazed with vita glass. The sanitary fittings are placed in towers at the back of the main block, and the main staircase and the electric bed lift continue up to the flat roof, which is specially arranged for sun treatment. The heating is by low pressure hot water, and on the ground floor the radiators are supplemented by ceiling panel heating. The electrical department is a one-storey building containing an X ray room, viewing room, office, and film store. The large treatment room is divided by curtains into nine cubicles and a doctor's room. There are also a preparation room, a waiting room, and lavatory. The total cost of both buildings is approximately £45,000. Sir George Newman declared himself abundantly satisfied with this expenditure—not only in his capacity of civil servant but also as one of the ratepayers of the county.

The medical superintendent of the hospital is Dr. W. E. Turner.

Dr. Percy Stocks, who is at present reader in medical statistics in the University of London, at University College, has been appointed medical statistical officer in the General Register Office.

Memorial to a Birmingham Surgeon

Last week a bed in the Birmingham and Midland Hospital for Women was dedicated to the memory of the late Mr. Christopher Martin, for many years honorary surgeon. The bed is in the ward named after him, and a tablet at its head records that it was "endowed by friends and patients of the late Mr. Christopher Martin in happy appreciation of his life and service."

Lectures on Tropical Hygiene

The next series of eight lectures and demonstrations on tropical hygiene, which are intended for men and women outside the medical profession proceeding to the tropics, will be given by Lieut.-Colonel G. E. F. Stammers daily from July 10th to 19th (11 A.M. to 12.30). The synopsis and other particulars may be had from the secretary of the London School of Hygiene and Tropical Medicine, Keppel-street, Gower-street, W.C. 1.

Order of the Hospital of St. John of Jerusalem

The following promotions and appointments among medical men to the Venerable Order of the Hospital of St. John of Jerusalem have received Royal sanction:—As Knight of Justice: Major-General Lord Dawson of Penn. As Knight of Grace: Major-General J. T. Fotheringham, Colonel Sir Edward Newbury Thornton. As Commander: Lieut.-Colonel W. K. Clayton, Dr. H. W. Horan, Dr. S. McCormac, Dr. H. A. Beatty, Col. Lorne Drum, Major-General Sir John Wallace D. Megaw, I.M.S., Dr. Arthur Dobson. Officer: Dr. James Cairns, Dr. Christopher Armstrong, Major James H. Dixon, Brevet Colonel J. Wallace, Dr. E. A. Braithwaite, Lieut.-Colonel O. A. Cannon, Colonel J. T. Clarke, Lieut.-Colonel G. G. Corbet, Dr. A. J. Douglas, Dr. R. Millar, Dr. G. D. Stanley, M.P., Lieut.-Colonel A. McP. Warner, Dr. R. E. Wodehouse, Dr. R. A. Worthington, Dr. A. T. Macnamara, Captain F. H. R. Heath, Dr. S. L. Dawkins, Captain M. G. Louisson.

Vacancies

For further information refer to the advertisement columns

Accringto [illegible]
Ashton- [illegible] of £150.
Bangor, [illegible] and Jun. H.S [illegible]
Beckenham, Kent, Bethlem Hospital, Monk's Orchard.—Res. H.P. At rate of £150.
Birmingham and Midland Eye Hospital, Church-street.—H.S. £130–£150.
Birmingham, Selly Oak Hospital.—Cas. O. At rate of £200.
Blackburn Royal Infirmary.—Res. H.P. £175. Also Fourth H.S. £150.
Bolingbroke Hospital, Wandsworth-common, S.W.—H.P. At rate of £120.
Brentwood, Essex, High Wood Hospital for Children.—H.P. £80.
Bristol General Hospital.—Two H.P.'s, Two H.S.'s, &c. All at rate of £80.
Brook (Fever) Hospital, Shooter's-hill, S.E.—Res. Med. Supt. £1000.
Burnley [illegible].—Jun. Res. M.O. £150.
Cancer [illegible].—H.S. At rate of £100.
Cardiff [illegible]
Cardiff, [illegible] *Hospital.*—Res. M.O. £650.
Cardiff, [illegible] ntal Surgeon. Also H.S. to Obstetric Dept. At rate of £50.
[illegible] *oratory, Archway Hospital, Archway-road,* [illegible] rade II. £750.
[illegible] *Derbyshire Royal Hospital.*—H.S. At rate of £150.
Coventry and Warwickshire Hospital.—Res. Cas. O. £125.
Edinburgh, Department of Health for Scotland.—Two M.O.'s. Each £600.
Edinburgh, Gogarburn Certified Institution, Corstorphine.—Res. H.P. At rate of £100.
Enfield, Education Committee.—School Dental Surgeon. £500.
Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £125.
Great Yarmouth General Hospital.—H.S. £140.
Guildford, Royal Surrey County Hospital.—H.S. £150.
Halifax, St. Luke's Hospital.—Jun. Res. M.O. £250.
Hammersmith Hospital, Ducane-road, Shepherd's Bush, W.—Asst. M.O. £350.
Hampstead General and North-West London Hospital, Haverstock-hill, N.W.—H.P. Also Cas. M.O. for Out-patient Dept. Each at rate of £100.
Hôpital et Dispensaire Français, Shaftesbury-avenue, W.C.—Hon. Asst. Surgeon.
Hospital of St. John and St. Elizabeth, 60, Grove-End-road, N.W.—Res. H.P. At rate of £100.
Huddersfield Royal Infirmary.—Two H.S.'s. Each at rate of £150.
Huddersfield, West Riding Mental Hospital, Storthes Hall.—Asst. M.O. £350.
Hull Royal Infirmary.—H.P. for Sutton Branch. At rate of £160. Also Cas. O. and H.S. to Ophth. and Ear, Nose and Throat Dept. Each at rate of £150.
Ilford, Borough.—Asst. M.O. £500.
Ilford, King George Hospital.—Hon. Surgeon to Ear, Nose and Throat Dept.
Infants Hospital, Vincent-square, Westminster.—Robert Mond Research Studentship. At rate of £100. Also Asst. Ophth. Surgeon.
Kingston-upon-Hull, Anlaby-ro [illegible] £350.
Lancaster Royal Infirmary.—P [illegible]
Leamington Spa, Warneford G [illegible] s. H.S. and House Resident to Spec. Depts. £150.
Leicestershire and Rutland Mental Hospital, Narborough.—Asst. M.O. £350.
Lewisham Hospital, High-street, Lewisham, S.E.—Asst. M.O. £350. Also H.P. £80.
Liverpool, David Lewis Northern Hospital.—Cas. O. At rate of £120. Also four H.S.'s and two H.P.'s. Each at rate of £80.
Liverpool Hahnemann Hospital, Hope-street.—Stipendiary M.O. At rate of £125.
Liverpool Heart Hospital.—Asst. Physician. £200.
Liverpool Royal Babies' Hospital, Woolton.—Res. M.O. At rate of £90.
Manchester, Ancoats Hospital.—H.P. At rate of £100.
Manchester Babies' Hospital, Burnage-lane, Levenshulme.—Jun. Res. M.O. At rate of £50.
Manchester, Christie Hospital and Holt Radium Institute, Withington.—Asst. [illegible] £500.
Manchester Northern [illegible] and Jun. H.S.'s. £130 and [illegible]
Manchester, St. Mary' [illegible] Whitworth-street West Hospital. Also Two H.S.'s, Whitworth-park Hospital. Each at rate of £50.
Manchester University.—Demonstrator in Human Physiology. £300.
Mount Vernon Hospital, Northwood.—H.S. At rate of £150.
National Hospital, Queen-square, W.C.—Asst. Pathologist. £250.
Nottingham City.—Asst. M.O.H. £500.
Nottingham General Hospital—H.S. At rate of £150.
Oswestry, Shropshire Orthopædic Hospital, &c.—Two H.S.'s. Each at rate of £200.
Paddington Green Children's Hospital, W.—H.P. and H.S. Each at rate of £150.
Plymouth, South Devon and East Cornwall Hospital.—Res. Anæsthetist and H.S. to Spec. Depts. At rate of £120.
Prince of Wales's General Hospital, N.—Hon. Physician to the Skin Dept.
Putney Hospital, The Lower Common, S.W.—Res. M.O. At rate of £150.
Quee [illegible] *l, E.*—Cas. O. £150.
Quee [illegible] *ey-road, E.*—Res. M.O. [illegible] O. Each at rate of £100.
Roy [illegible] *nd Women, Waterloo-road,* [illegible] nts.
St. [illegible] *and Dispensary.*—Hon. [illegible]
St. [illegible] *Camberwell, S.E.*—Clin. Asst. At rate of £100.
St. John's Hospital, Lewisham, S.E.—Res. H.P., H.S., and Cas. O. Each £100.
Salisbury General Infirmary.—H.P. At rate of £150.
Sheffield, Children's Hospital.—H.S. At rate of £100.
Sheffield Radium Centre, Royal Infirmary.—Asst. M.O. £300.
Sheffield Royal Hospital.—Ophth. H.S. £120.
Shrewsbury, Royal Salop Infirmary.—Res. H.P. At rate of £160.
Southampton Children's Hospital and Dispensary for Women.—Res. M.O. At rate of £150.
Southampton, Royal South Hants and Southampton Hospital.—H.P. and H.S. to Ear, Nose and Throat Dept. Each £150.
Southend-on-Sea General Hospital.—Res. Obstet. and Gynæcological Officer. At rate of £125.
South London Hospital for Women, Clapham Common, S.W.—H.S. At rate of £100.
South Shields, Ingham Infirmary.—Sen. and Jun. H.S.'s. At rate of £200 and £150 respectively.
Stamford, Rutland, and General Infirmary.—H.S. At rate of £200.
[illegible] £150.
[illegible] *firmary.*—H.S. £170.
[illegible] *tal, Gower-street, W.C.*—Ophth. Reg. [illegible]
University of London, University College, W.C.—Lecturer in Dept. of Physiology and Biochemistry. £350.
Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150.
West End Hospital for Nervous Diseases, Welbeck-street, W.—Jun. H.P. At rate of £100.
West London Hospital, Hammersmith-road, W.—Hon. Med. Reg. to Children's Dept. Also Res. Anæsthetist. At rate of £100.
Wigan Royal Infirmary.—H.S. At rate of £150.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £150.
Wolverhampton Royal Hospital.—H.S. for Ear, Nose, and Throat Dept. At rate of £100.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons at Colyton (Devon), Highworth (Wilts), and South Cave (York East Riding).

NOTES, COMMENTS, AND ABSTRACTS

WARDENS OF HEALTH

"CAN you account him wise or discreet that would willingly have his health and yet will do nothing that should procure or continue it?" Dr. A. Salusbury MacNalty, who lately quoted [1] this rhetorical question put by Robert Burton in the seventeenth century, thinks that people are now just beginning to learn that they must pay the price of health in temperance, self-control, regular habits, and hygiene of body and mind. The slow building-up of our public health system has been responsible for the development of a public conscience towards the preservation of health; and increasing longevity and decrease in national mortality are measures of success.

Dr. MacNalty traces the evolution of the public health service from the beginnings of preventive medicine foreshadowed in early Greek and Jewish rules of hygiene, down to the work of the Ministry of Health to-day. The first Sanitary Act was passed in England in 1388, and was followed by quarantine laws, by the appointment of scavengers and sanitary watchmen, and by penalties for the concealment of infected persons. The monasteries undertook the care of the sick poor in the Middle Ages, and a serious problem was created by their dissolution in the reign of Henry VIII.; to meet it, the first Poor Law Acts were passed in Elizabeth's reign, under which poor-rates, overseers, and houses for the sick and infirm were established. Workhouses were not founded until 1722, and poor-law unions came still later. The Reform Act of 1832 and the Factory Acts of 1833 remedied some of the abuses of child workers in industry, and a new principle was introduced by the appointment of inspectors who represented neither employers nor employed. In 1842 Edwin Chadwick issued his report on the sanitary condition of the labouring population of Great Britain and brought some shocking facts to light. Water-supplies were so defective that cleanliness was impossible, and the annual loss of life from diseases induced by filth and bad ventilation was greater than the toll of lives taken in warfare. His findings were confirmed by a Royal Commission, and an epidemic of cholera came to lend point to his observations. The Public Health Act of 1848 was passed, which led to the formation of a new Government department, the General Board of Health; this had to be abolished in 1858 because it had ignored the demand of the public for self-government.

In 1871, however, a new central department was formed—the Local Government Board—which was the immediate parent of the Ministry of Health. The Public Health Act was passed in 1875, consolidating the previous Acts into a sanitary code, making the appointment of medical officers of health by local authorities compulsory, and aiming at better drainage, scavenging, and sanitation. The Board directed a long series of progressive reforms, including the improvement of water-supplies, provision of isolation hospitals, and the supervision of slaughter-houses and common lodging-houses. The school medical service was established in 1907, and in 1911 the National Health Insurance Act was passed. The minority report of the Poor Law Commission of 1905 recommended that the health services of the poor-law should be taken over by local authorities, but this suggestion was not adopted till 1929. The Ministry of Health itself was not established until the war had ended in 1918, when public feeling welcomed the thought of the preservation of life instead of its destruction. The Ministry was created as a central authority to supervise the health of the people as a whole, and its chief medical officer, Sir George Newman, is also chief medical officer of the Board of Education.

The Ministry is kept in touch with the work of general practitioners through the regional medical officers, and it coöperates closely with local authorities; it is linked with the Service departments, the Ministry of Pensions, the Home Office, the Medical Research Council, the Ministry of Agriculture and Fisheries, and other Government departments, and the chief medical officer is nominated by the Crown as a member of the General Medical Council. The Ministry, therefore, holds the threads of the health service which forms a closer network every year. But regulations, as Dr. MacNalty points out, cannot make a healthy nation unless the force of public opinion is behind them. "It rests," he says, "with the people to participate in the work of the Ministry in order to make it effective."

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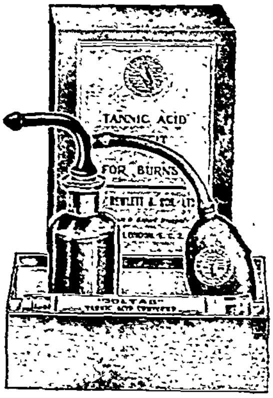
[1] Medical Work of the Ministry of Health, London Hosp. Gaz., June, 1933, p. 302.

NEW PREPARATIONS



TANNIC ACID OUTFIT FOR BURNS.—From C. J. Hewlett and Sons, Ltd., Charlotte-street, London, E.C., we have received a specimen of an outfit for the treatment of burns by means of a tannic acid spray. The outfit consists of a tube containing "soltabs," a soltab being a compressed tablet of the following composition: tannic acid grs. $7\frac{1}{2}$, hydrarg. perchlor. gr. $\frac{1}{2}$, and acid. boric gr. 1. One of these tablets dissolved in 2 fluid ounces of water, which should be warm, produces a 2 per cent. solution of tannic acid, with 1/2000 per chloride of mercury. In the box containing the outfit there are also sent a bottle with a vulcanite spray and rubber bellows.

STABISMOL.—We have received from Boots Pure Drug Company, Nottingham, samples of a solution of an oil-soluble bismuth compound for employment in the indicated cases, notably in venereal patients intolerant or resistant to treatment by arsenic or mercury. The preparation is issued in the form of a stable sterile solution in olive oil, standardised to contain 0·1 g. bismuth metal in 1 c.cm. of the stabismol solution. Stabismol is supplied in hermetically sealed glass ampoules, each ampoule containing either 2·5 c.cm. or 1·2 c.cm., of which 2 c.cm. or 1 c.cm. will be withdrawn in the process of injection. The ampoules are also made up in boxes of 10, while the Company also issue the drug in 1 oz. bottles, hermetically sealed, 1 fluid ounce containing 28·35 c.cm. Throughout the instructions issued with the preparation the advice of the doctor is assumed as to administration, and the need for oral hygiene in bismuth therapy is emphasised

"MEDICINE IN CANADA"

THIS little book [1] is in no sense a systematic history of medicine in Canada, but it contains a sound selection of material and affords illustrative aspects of the whole subject. The greater part of the text is made up of short biographies of the pioneers of medicine in Montreal, Quebec, and Toronto, among the most detailed of these being an outline of the career of that extraordinary character, John Rolph, the hero of "Rolph's Ride." A considerable bibliography informs the reader where further information can be found concerning many of the subjects and characters dealt with.

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[1] Medicine in Canada. By William B. Howell, M.D. Clio Medica Series, No. IX. Edited by E. B. Krumbhaar, M.D. New York: Paul B. Hoeber, Inc. 1933. Pp. 137. $1.50.

A VISIT TO THE BEMAX FACTORY

THE members of the council of the Metropolitan Branch of the Society of Medical Officers of Health visited the factory where Bemax is manufactured, on June 30th, at the invitation of Vitamins, Ltd. Lunch was provided for the party, which numbered over 70, including lady guests, at the Clarendon Hotel, Hammersmith, before the inspection of the factory and research laboratories, which occupy a spacious riverside frontage. The process was followed from the arrival of the wheat germ in sacks, and its crushing to appropriate size; the transport by air pressure to ovens and the sifting of the cooked product; and finally its packing in tins and cartons for home consumption and in special containers for export. During all these processes bemax is not touched by hand. The excellent ventilation of the factory and the hygienic conditions under which the work is done was the subject of appreciative comment.

The rats on which potency tests are made are well housed in a separate building. After the tour Dr. A. Z. Baker, the head of the research department, briefly described the material exhibited in the laboratories. She emphasised the importance of proper standardisation of vitamin-containing substances and drew attention to experimental methods in use, pointing out the value of the international standards recently adopted. Preliminary tests, now being made, suggested that the value for bemax would be somewhere in the neighbourhood of 400 international units of vitamin B_1 per ounce. She referred to the similarities between pathological conditions occurring in a large colony of partially B-deficient animals and in the human population, and concluded that much so-called "general debility" might be traceable to the consumption of a mixed diet containing only limited amounts of vitamin B. Dr. Baker compared statistics respecting the causes of death of infants under 1 year with figures obtained from a breeding colony of rats, and found that they supported her plea for the supplying of additional vitamin B during pregnancy and lactation. Prof. J. C. Drummond then spoke. He drew attention to the increased incidence of gastro-intestinal diseases in H.M. prisons since the middle of last century, when modern milling was introduced, and regarded this as being closely correlated with the removal of the vitamin-containing germ from white flour.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

HARVEIAN SOCIETY OF LONDON.

SATURDAY, July 15th.—3.15 P.M. (at Down House, Downe, Kent), Sir Buckston Browne: Charles Darwin.

SOCIETY FOR THE STUDY OF INEBRIETY.

TUESDAY, July 11th.—4 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. J. D. Rolleston: Alcoholism in Mediaeval England.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, July 11th.—9 P.M. (at the Great Western Royal Hotel, Paddington), Sir James Purves-Stewart: Medical Impressions of Soviet Russia.

INTERNATIONAL SOCIETY OF UROLOGY.

MONDAY, July 10th, to SATURDAY.—Congress in London.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY, July 13th.—7.15 for 7.30 P.M. (at the Florence Restaurant, London, W.), Annual General Meeting. (Preceded by Dinner.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

MONDAY, July 10th, to SATURDAY, July 15th.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. *Course in Ophthalmology.* Mon., Wed., and Thurs. Afternoons and evenings.—HOSPITAL FOR CONSUMPTION, Brompton, S.W. Course in Practical Pathology dealing with Laboratory Methods and the Interpretation of Results. Mon. and Thurs., 11.30 A.M. to 1 P.M.—ALL SAINTS' HOSPITAL, Austral-street, West-square, S.E. Course in Urology. Afternoons and some evenings.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Demonstration of X Ray Films by Dr. Peter Kerley, on Thurs. at 4 P.M. to 6 P.M.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-road, S.E. Course in Dermatology. Every afternoon.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.

MONDAY, July 10th.—10 A.M., Medical and Surgical Wards, Skin Clinic. 2 P.M., Gynaecological and Eye Clinics, Surgical Wards.

TUESDAY.—10 A.M., Medical Wards. 11 A.M., Surgical Demonstration. 2 P.M., Throat, Nose, and Ear Clinic. 4.15 P.M., Mr. Green-Armytage: Common Diseases During Pregnancy.

WEDNESDAY.—10 A.M., Medical and Children's Wards, Children's Clinic. 2 P.M., Eye Clinic. 3.45 P.M., Venereal Disease Demonstration.

THURSDAY.—10 A.M., Neurological and Gynaecological Clinics. 11 A.M., Fracture Demonstration. 2 P.M., Eye and Genito-urinary Clinics.

FRIDAY.—10 A.M., Skin Clinic. 12 noon, lecture on Treatment. 2 P.M., Throat, Nose, and Ear Clinic.

SATURDAY.—10 A.M., Medical and Surgical Wards, Children's Clinic.

DAILY.—2 P.M., Operations, Medical and Surgical Clinics. The Demonstrations at 4.15 P.M. are open to all medical practitioners without fee.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, July 12th.—4 P.M., Mr. L. Phillips: Demonstration of Antenatal Cases.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

THURSDAY, July 13th, to SATURDAY.—Conference at Cardiff.

Appointments

FORMBY, MYLES L., M.B., [illegible] S. Eng., has been appointed Assistan[illegible] College Hospital, in the Ear, Nose, a[illegible] (Royal Ear Hospital).

MACLEOD, A. J., M.B., Ch.B. Glasg., Medical Referee under the Workmen's Compensation Act, for Lochmaddy District (Inverness, Elgin, and Nairn).

City of London Maternity Hospital: MANCLARK, R. A., L.R.C.P. Lond., M.R.C.S., Resident Medical Officer; KNOWLTON, R. W., L.R.C.P. Lond., M.R.C.S., Assistant Resident Medical Officer

Births, Marriages, and Deaths

BIRTHS

MURRAY.—On June 21st, at Blighmont House, near Southampton, the wife of Major Douglas H. Murray, M.D., R.A.M.C., of a daughter.

SMITH.—On June 30th, at a nursing-home, Cardiff, the wife of Dr. A. H. D. Smith, M.C., Greenfield, Llanelly, Carmarthenshire, of a daughter.

MARRIAGES

ANDERSON—GIBBINS.—On June 28th, at St. Mary's Church Temple Guiting, *Thomas Macmillan Anderson*, M.D., F.R.C.P.E., to Kathleen Elsa Gibbins, of Birmingham.

[illegible] 28th, at St. Mary's Church, [illegible] eldest son of the late Michael [illegible], of Midleton, Co. Cork, to [illegible] ler daughter of Mr. and Mrs. [illegible] Ripley, Derby.

SMITHERS—ANGEL.—On June 30th, at St. James's Church, Tunbridge Wells, David Waldron Smithers, M.R.C.S., L.R.C.P., to Marjorie, only daughter of Mr. and Mrs. H. Reeve Angel, of Ferncliffe, Tunbridge Wells.

DEATHS

ANDERSON.—On June 29th, at Loudoun-road, N.W., John Ford Anderson, M.D., M.R.C.P., aged 93.

DICKINSON.—On June 29th, John Alfred Ernst Dickinson, C.B., I.S.O., of Ritherdon-road, S.W., aged 74.

GREER.—On July 1st, at The Red House, Bedfont, Middlesex, William Wells Greer, M.C., M.D., F.R.C.S.E.

OWEN.—On July 1st, at Highfield, Rushden, Northants, Charles Richard Owen, M.R.C.S., L.R.C.P., aged 85.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

ADDRESSES AND ORIGINAL ARTICLES

THE INFLUENCE OF THE ENDOCRINE SYSTEM IN BLOOD DISORDERS

By Douglas Hubble, M.B. Lond.
ASSISTANT PHYSICIAN TO THE DERBYSHIRE HOSPITAL FOR SICK CHILDREN

It has long been a commonplace amongst Continental hæmatologists that the secretions of the endocrine glands have a specific effect on hæmopoiesis, and it has been postulated by many observers, and by Naegeli in particular, that several of the obscure blood diseases are caused by a primary disorder of some part of the endocrine system. It is not a view which has gained many adherents, either in this country or in America, and it must be admitted that up to a few years ago there was little good evidence for such a hypothesis. The position is now changed, and the whole subject demands re-examination in the light of newly established facts. This fresh evidence has been produced by many clinicians and physiologists, mainly in America, and no previous attempts have apparently been made to correlate their observations.

It is intended to outline in the first part of this paper the effect of the hormones of the thyroid, the adrenals, and the pituitary on hæmopoiesis. There is a large literature concerning the possible influence of secretions from other organs, particularly the spleen and the ovaries, but the evidence is so conflicting that it is difficult to coördinate it into an intelligible review. It may, however, be regarded as established that both the spleen and the ovaries do exert a definite effect on blood formation. No attempt is made to distinguish between the action of the members of the endocrine system and the adjacent parts of the nervous system. The possibility is not denied that in any apparently pure endocrine effect the nervous system may play a controlling or subordinate part, but an endeavour, for example, to disentangle the pituitary from the diencephalon, or the thyroid from the sympathetic system, would obviously be futile in the present investigation.

In the second part the attempt is made to trace, by fact, analogy, and theory, evidence of endocrine disorder in those hyperplasias and hypoplasias of the blood whose ætiology is still obscure.

There follows now a résumé of the experimental and clinical evidence concerning the influence of the thyroid, the adrenals, and the pituitary on hæmopoiesis.

The Thyroid Gland

EXPERIMENTAL EVIDENCE

Thyroidectomy in animals.—The removal of the thyroid gland in experimental animals has been shown by many observers to result in a decrease in the number of circulating red cells, and in a decline in the percentage of hæmoglobin. These experiments have been recently repeated with great care by Kunde and others,[1] and these results confirmed. These observers showed, moreover, that the resulting anæmia was characterised by an increase in the diameter of the red cells and a high colour-index. They excluded the possibility that the anæmia was apparent rather than real—i.e., due to the dilution of the plasma—by studies of the blood volume. Scherman[2] reports that in animals with an experimentally produced anæmia blood regeneration is retarded by thyroidectomy, and Askanazy[3] likewise states that animals in whom thyroidectomy has been performed do not show the normal polycythæmic reaction at pressures lower than atmospheric. The reported effects of thyroidectomy on the leucocytes are not so unanimous, but most observers report a depression in the lymphocytic elements, while both increases and decreases in the granular cells have been recorded.

Thyroid feeding in animals.—The reports of experimental thyroid feeding on the blood count have been discordant, but Kunde and others, in experiments with a large series of rabbits, both normal and "cretin," have shown the reason for this. The first effect they noted was an increase both in the red cell count and the percentage hæmoglobin, but if treatment was prolonged a secondary anæmia showed itself characterised by a lowered colour-index and diminution in the size of individual erythrocytes (vide infra a similar effect has been noted clinically). In the "cretins," but not in the normal animals, a reticulocytosis ranging from 4 to 10 per cent. followed thyroid administration.

Jedlowski,[4] in very interesting experiments, treated 26 pregnant guinea-pigs by thyroid extract and studied the blood picture of the offspring. He found an average erythrocyte count of 6,150,000 as compared with 4,500,000 in control animals produced by non-thyroidised mothers. This effect lasted only 15 to 20 days after birth, when the blood count fell to normal limits.

Varied accounts are given of the effect of thyroid feeding on the total leucocyte count and the polymorphonuclear cells, but most observers record an increase in the lymphocytes, monocytes, and basophil cells. Lim and others,[5] in experiments performed ten years ago, studied the effect on the bone-marrow instead of on the circulating elements, and found after thyroid feeding a marked increase in granulocytes and small mononuclears in the bone-marrow.

CLINICAL EVIDENCE

Blood picture in myxœdema.—It has long been recognised that myxœdema is frequently accompanied by a secondary anæmia, leucopenia, and a relative or absolute lymphocytosis. Lerman and Means[6] state that of 52 cases of myxœdema studied by them, 60 per cent. had red counts below 4,000,000 per c.mm. In most cases the blood picture is one of secondary anæmia, but in some it is of the hyperchromic, megaloblastic type. Means, Lerman, and Castle[7] have reported five cases with a blood picture of pernicious anæmia, and Mackenzie[8] has reported three. In this connexion it should be noted that Lerman and Means have recently demonstrated that 9 out of 17 patients with myxœdema showed complete achlorhydria, and they found that there is a direct correlation between the presence of achlorhydria and the degree of anæmia.[9] In some cases the blood picture is restored to normal by thyroid administration alone, but in others iron or liver is needed for complete restoration. Witts,[10] in this country, has called attention to these cases of hypothyroidism with a hyperchromic, megaloblastic blood picture.

Blood picture after thyroidectomy.—Jackson,[11] after an examination of the blood in 600 patients suffering from goitre with varying degrees of hyperthyroidism, reports after thyroidectomy a consistent increase in the polymorphonuclear count and a decrease in the lymphocytes, with no characteristic alteration in the red cell count. Hertz and Lerman[12]

POLYCYTHÆMIA VERA (OSLER-VAQUEZ DISEASE)

There is a raised metabolic rate in polycythæmia vera, and Friedgood, in a personal communication, reports a case in which the basal metabolic rate of plus 17 per cent. was reduced to minus 3 per cent. in a fortnight (exactly comparable to the effect in exophthalmic goitre) by Lugol's iodine. In another case he reduced the red cell count from 7,130,000 per c.mm. to 5,210,000 in twelve days by Lugol's iodine. It is difficult to escape from the conclusion that this effect is exerted through the thyroid; it seems probable from the occurrence of polycythæmia in pituitary basophilism, that the thyroid is being stimulated by excessive basophilic secretion. There is a rare variety of polycythæmia named after Giesbock (polycythæmia hypertonica) which has a close relationship to pituitary basophilism, for it carries an added triad of signs—hypertension, arterio-sclerosis, and nephritis—which Cushing believes to be a basophilic effect and not, as is usually thought, due to adrenal cortex hyperplasia.[56] It becomes a reasonable hypothesis, then, that at least some cases of polycythæmia vera are due to the excessive discharge of a hormone from the basophilic cells of the pituitary; in fact, apart from the so-called symptomatic polycythæmias, these pituitary and diencephalic conditions constitute the only known ætiological factor in polycythæmia vera. Moreover, in some published cases of polycythæmia vera it is possible to trace evidence of endocrine disorder which has remained unrecognised by those reporting the cases. For example, Horder[57] records a case of polycythæmia vera in a woman in whom there was a bilateral papillœdema with diminution of visual fields suggestive of a cerebral neoplasm; and another in a man in whom there was marked osteoporosis of several bones with a spontaneous fracture of the left tibia.

It will be observed that a very striking feature of all these blood-cell hyperplasias receives its best explanation if the endocrine and nervous systems are accepted as an ætiological factor in each—and that is the marked overlapping which is observed between any two of them, i.e., the lymphocytes are increased in myelogenous leukæmia, myelocytes are sometimes present in large numbers in polycythæmia, while megaloblasts are seen in myelogenous leukæmia even in the absence of anæmia.

BLOOD DISORDERS SHOWING BLOOD-CELL HYPOPLASIA

A group of blood disorders has been reviewed by Lescher and Hubble[58] which, it is suggested, are united by a common ætiology—i.e., deficient production of the blood elements by a hypoplastic bone-marrow. These diseases include aplastic anæmia, in which all the cellular elements are deficiently produced; agranulocytosis, in which there is defective production of granulocytes only; and idiopathic purpura hæmorrhagica, in which there is great reduction of circulating elements. As in the blood hyperplasias discussed above, many cases show an intermediate state between any two of these conditions, and they are not to be regarded as clear-cut entities. A toxic and infective origin for these disorders has been widely assumed, but, although this is undoubtedly sometimes responsible, it has been shown that this hypoplasia does not explain the "idiopathic" cases; it was further suggested that there was some missing endogenous factor which was essential for the advancement of the reticulo-endothelium to the next stage in hæmopoiesis, and the possibility was discussed that this factor might be some endocrine secretion.[58] Although this still remains a tentative hypothesis, further evidence has accumulated which tends to confirm it.

Aplastic Anæmia

Kunde and her co-workers[1] note that the bone-marrow in their thyroidectomised rabbits strongly resembled the description given by Selling[59] of the bone-marrow after benzol poisoning, and by Doan[60] of the bone-marrow in starved pigeons.

This is interesting because the bone-marrow as described by Selling and Doan showed characteristic hypoplasia and aplasia, and furnish the only examples of experimentally produced aplasia. Moreover, it was from these hypoplastic bone-marrows that Kunde produced a reticulocytosis to 10 per cent. by thyroid administration which suggests that, in cretinoid animals, thyroid extract is capable of advancing the reticulo-endothelium to the reticulocyte stage in hæmopoiesis. It is well known that cases of aplastic anæmia such as Hurst's[61] may be kept in good health by repeated transfusions every three weeks or so. It seems probable that the value of the transfusions lies in the supply of a missing factor which acts as a temporary stimulant to the patient's own bone-marrow, and not in the relatively small quantitative addition to the circulating cells.

If an attempt is to be made to include aplastic anæmia in a scheme of endocrine disorders, it will have to be regarded as the exact counterpart of polycythæmia and due to a deficient secretion of the basophil cells of the anterior pituitary.

AGRANULOCYTIC ANGINA

Reference has been made above to the experiments of investigators of the University of Virginia.[19] They refer to the possibility that the granulopenia of adrenal insufficiency is related to the clinical condition of "agranulocytosis" as observed in man, and they point out that the neutrophil leucocyte is one of the chief cellular defence mechanisms. They suggest that such a highly differentiated and relatively unstable tissue as the adrenal cortex may be disorganised oftener and more readily than suspected, and such disorganisation may be implicated in neutropenic conditions observed in man. A remarkable case described by Jaffé[62] gives support to this hypothesis. He records that a case of lymphadenoma developed agranulocytosis, and at post-mortem granulocytes were even absent from the lymphadenomatous infiltrations. The suprarenals were found to be invaded and destroyed by lymphadenomatous tissue. The most thorough examination of the endocrine system in agranulocytic angina is reported by Bacaloglu and others.[63] They state:—

> "L'insuffisance pluriglandulaire doit avoir sa part dans la genèse de ce tableau clinique. Les ovares sont scléreux, l'hyophyse, surtout le lobe postérieur, la corticale des surrenales et surtout la thyroide présentent une intense sclérose avec atrophies et dégénérescences partielles des cellules glandulaires. La thyroide présente, de plus, d'abondantes infiltrations lymphocytaires, puis des amas et des cordons cellulaires à eosinophiles, comme dans une hyperthyroidie basedowienne."

It is interesting to note that the anterior lobe of the pituitary escaped this degenerative process, and that the patient's red cell count remained within normal limits during life.

Because agranulocytosis is most common in women at or about the time of the menopause, several observers have postulated an ovarian deficiency as a prime cause; it will be noted that the ovaries took part in the pluriglandular sclerosis in the above case.

Two extraordinary cases of cyclic agranulocytosis have been described by Rutledge[64] and others, and

Doan.[65] In both of them the granulocytes fall regularly every three weeks or so to extremely low values with typical attacks of agranulocytosis. Harvey Cushing,[66] referring to other physiological examples of cyclism, such as œstrus, menstruation, hibernation, and sleep, says: "That these processes are somehow under the control of the diencephalo-pituitary apparatus seems most probable." It is difficult to account for cyclic agranulocytosis except on an endocrine or nervous hypothesis.

It will be recalled that Doan,[65] Jackson and others,[67] have shown that pentose nucleotide restores granulopoiesis to normal agranulocytic conditions. It will be interesting to see whether this substance has any affinity to a hormone from the adrenal cortex.

IDIOPATHIC PURPURA HÆMORRHAGICA

There is no evidence as to any hormone stimulating platelet production, but since the platelets are markedly reduced in lymphatic leukæmia and increased in myelogenous leukæmia, it would be expected that their production is stimulated by the cortico-adrenal hormone. It is perhaps not irrelevant to add here that the antiscorbutic factor which protects animals from scurvy and is known as ascorbic acid (it is apparently identical with vitamin C) has been prepared from the cortex of the suprarenal glands. In fact this appears to be the most potent source of the antiscorbutic factor yet investigated, being three times more potent than orange juice.[68]

Conclusion

This complete hypothesis may be put into a general scheme in this way:—

Pituitary basophilic excess	..	Polycythæmia vera.
Pituitary basophilic deficiency	..	Aplastic anæmia.
Cortico-adrenal excess	..	Myelogenous leukæmia.
Cortico-adrenal deficiency (with ovarian deficiency)	..	Agranulocytic angina.
Thyroid dysfunction	..	Lymphatic leukæmia. Monocytic leukæmia.

There is an obvious objection to this theory of endocrine imbalance as a cause for these blood disorders, and that is the meagre evidence of other signs of endocrine disorder that these diseases display. This objection cannot be answered (although it must be admitted that in the past such evidence has been but infrequently sought), without assuming that the endocrine glands produce chemical substances which are more or less specific in their action on blood formation, and that these particular hormones may be produced in excess without coincident excess of all other hormones. For example, the adrenal cortex may stimulate the granulocytes to excess without at the same time altering the secondary sex characters. This idea, while still unproven, is not so fantastic as it would have appeared a few years ago.

Some of these ideas which support this hypothesis are still speculative, for others, the facts supply reasonable proof. Their factual basis is sufficiently impressive to demand that they receive thorough investigation. It is not difficult to suggest the lines which investigation should follow: (1) Careful blood examinations in pituitary and adrenal disorders. (2) The effect of endocrine extracts (e.g., cortico-adrenal extract) on the blood in normal persons, in anæmias, in aplastic anæmia, in agranulocytic angina, and in purpura hæmorrhagica. (3) The morbid anatomy of the endocrine system in all blood disorders referred to in the scheme. (4) The effect of X ray therapy to the thyroid gland in lymphatic leukæmia.

Summary

1. The clinical and experimental evidence relating to the effect of the thyroid, the cortex of the adrenals, and the anterior lobe of the pituitary on hæmopoiesis is reviewed.

2. It is shown that the thyroid hormone stimulates the production of red cells and lymphocytes, and depresses the output of granulocytes; the adrenal cortical hormones stimulate the production of granulocytes and possibly also of red cells; while the basophil cells of the anterior lobe of the pituitary stimulate all types of circulating cells, giving rise to a clinical picture of polycythæmia. It is possible that the anterior pituitary produces this leucopoietic result indirectly through the thyroid and the adrenal cortex.

3. It is suggested that in hyperplasias and hypoplasias of the circulating blood-cells, a primary disorder of the endocrine system is the dominant ætiological factor.

4. The clinical parallelism between exophthalmic goitre and chronic lymphatic leukæmia is displayed with particular reference to Friedgood's work on the response of the basal metabolic rate, the pulse-rate, and the cell count in lymphatic leukæmia to treatment with Lugol's iodine. It is concluded that the cause of lymphatic leukæmia is a primary dysfunction of the thyroid gland.

5. It is suggested that an excess of an adrenal cortical hormone is responsible for myelogenous leukæmia, and it is pointed out that polycythæmia is a cardinal sign of hyperplastic conditions of the anterior lobe of the pituitary.

6. Two hyperplasias of the bone-marrow are considered, agranulocytic angina and aplastic anæmia, and some further evidence is reviewed which suggests for them also an endocrine ætiology.

7. In conclusion, further lines of investigation are suggested which may be expected to test these hypotheses.

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TABLE IV.—*Total Silica between 1·0 and 1·6 per cent. of Dried Lung Substance*

Case	Age.	Main cause of death.	Fibrosis of lungs.	Occupation.	Silica % of lung.
24	62	Pulmonary, with tuberculosis and carcinoma of lung.	Much.	Coal-miner, anthracite.	1·02
25	59	Fatty heart rupture.	Slight.	,, ,,	1·03
26	69	Pneumonia.	Definite.	,, ,,	1·04
27	56	Pulmonary.	Much.	,, ,,	1·08
28	47	,,	Intense.	Repairer and hard-headings, anthracite.	1·10
29	56	Pulmonary, with tuberculosis.	Much.	Coal-miner, soft coal.	1·12
30	59	Pulmonary.	,,	Coal-miner, anthracite.	1·20
31	63	Septicæmia.	Definite.	Repairer, anthracite.	1·20
32	48	Pernicious anæmia.	Much.	Coal-miner, house coal.	1·27
33	53	Pyloric carcinoma.	Definite.	Repairer, hard coal.	1·32
34	54	Toxic nephritis, peritonitis.	,,	Coal-miner, anthracite.	1·45
35	62	Pulmonary, fatty heart.	Much.	,, ,,	1·50
36	43	Pulmonary, with tuberculosis.	Intense.	Coal-miner, hard coal.	1·50
37	36	Addison's disease.	Definite.	,, ,,	1·50
38	51	Cardiac.	,,	Coal-miner, anthracite.	1·52
39	55	Pulmonary, with tuberculosis.	Much.	,, ,,	1·54

Comment.—In every case except Case 25 fibrosis was a leading feature and "pulmonary" deaths frequent.

TABLE V.—*Total Silica between 1·6 and 2·4 per cent. of Dried Lung Substance*

40	50	Pulmonary.	Intense.	Coal-miner, anthracite.	1·72
41	?	,,	Much.	Potter.	1·78
42	53	Pulmonary, with tuberculosis.	,,	Coal-miner, anthracite.	1·80
43	53	Pneumonia.	Definite.	,, ,,	1·78
44	57	Cholangitis, pneumonia.	Much.	Repairer, anthracite.	1·91
45	26	Pulmonary, with tuberculosis.	Definite.	Coal-miner, anthracite.	1·98
46	52	Pulmonary.	Intense.	Coal-miner, soft coal.	2·08
47	51	Pulmonary, with tuberculosis.	,,	Coal-miner, hard coal.	2·16
48	57	,, ,,	Much.	Hard headings, hard coal-mines.	2·28

Comment.—In every case important fibrosis, often with tuberculosis, and "pulmonary" deaths with only one exception.

TABLE VI.—*Total Silica exceeding 2·4 per cent. of Dried Lung Substance*

49	60	Pulmonary.	Intense.	Potter.	2·69
50	52	Fatty heart, pulmonary.	,,	Hard headings, anthracite.	2·69
51	51	Pulmonary.	,,	,, ,,	3·18
52	44	Pulmonary, with tuberculosis.	Much.	Coal-miner. anthracite.	3·22
53	59	Fatty heart, pulmonary.	,,	,, ,,	3·20
54	53	Pulmonary.	Intense.	Coal-miner, hard coal.	3·30
55	55	,,	,,	Hard headings, rock borings.	3·45
56	41	,,	,,	Hard headings, hard coal-mines.	3·79
57	48	,,	,,	Hard headings, anthracite.	3·91
58	53	Accident, fractured skull.	,,	Plasterer; coal-miner, soft coal.	4·07
59	52	Pulmonary.	,,	Coal-miner, anthracite.	4·28
60	?	,,	,,	Coal-miner, hard coal.	4·76

Comment.—Lung fibrosis advanced in every case and deaths mainly due to this, Case 58 excepted.

can be caused only by "free" silica may yet require reconsideration.

As pointed out by Kettle,[4] the pioneer South African work on silicosis as found in the Rand miners has somewhat overshadowed the subject, and this may have tended to minimise unduly a realisation of the possible influence of "combined" silica as an agent of fibrosis. Badham,[5] [6] in New South Wales, is by no means assured that silicates are harmless, and Kettle's recent experimental work [7] on the effects of kaolin (containing combined silica) and the contrasted inert behaviour of silicon carbide, is very pertinent.

It would be of some assistance at least if it were possible to get accurate differentiation between free and combined silica in the lung tissue, but there are serious practical difficulties in the satisfactory determination of free silica in lung material, nor would a perfect method of analysis enable us to trace the fate of inhaled free silica after solution had converted it presumably to silicate within the tissues.

Many observers have noted the presence of doubly refractile particles in fibrotic lung tissues, and have perhaps assumed that these represent free silica. A survey of many lung sections by Cummins and myself leads us to the conclusion that although there is a rough correlation between the number of such particles and the presence of silicotic fibrosis in histological sections, nevertheless there are too many technical difficulties to make the method in any sense quantitative at least in the hands of those untrained in petrological technique. In most lung sections the refractile particles are extremely small, very seldom exceeding 3 microns in diameter. A factor to be remembered is the length of time any particle has been present in the lung tissues; if it be accepted that a slow process of solution precedes the fibrotic activity of the silica, then the size of any particle must gradually diminish as its substance becomes dissolved and toxic to the surrounding tissues.

SILICA AND THE COAL-MINER

In the paper by Cummins and Sladden [1] there was ample evidence adduced to show that fibrosis of lungs of an advanced degree is not uncommon amongst Welsh coal-miners; many of their observations were made upon workers from the western end of the coal-field where anthracite is mined, but examples of advanced silicosis are not lacking in the mines further east where steam-coals and soft-coals are got, and some are included in the Tables given here. In every case of advanced fibrosis and "anthracosis" silica has been found present in important amount, and the opinion is expressed in the paper quoted that the silica found is sufficient to account for the fibrosis, the carbonaceous ("anthracotic") dust being accumulated by reason of impairment of the lymph drainage of the lungs. If this explanation be correct, one would expect a cumulative addition, both of silica and of coal-dust, in those who continue to work in an atmosphere heavily charged with these materials when once their lungs have become substantially damaged.

Research in America [8] has shown that of all dusts to which industrial workers may be exposed, "coal-dust" in the mines is the most concentrated. The American figures showed an average of more than 8000 dust particles (of less than 10 microns diameter) per cubic centimetre of air. Since the "coal-dust" of mines contains a proportion of siliceous matter—0·6 per cent. or more according to Redmayne—an atmosphere so dusty will actually contain about

50 particles of siliceous matter per c.cm. The lowest "danger limit" agreed, both in Australia and South Africa, for the purer forms of silica is 200 particles per c.cm.; it follows that the very concentrated dust of a coal-mine though containing some silica will not ordinarily reach the danger level for this substance; nevertheless it would appear to be quite possible to inhale as much as 2 mg. of actual silica in these conditions during a day's work. At that rate, working 250 days a year, 0·5 g. of silica might reach the lungs in a year, and in ten years as much as 5·0 g. could be inhaled, though not necessarily retained completely.

In a study of the lungs of 24 coal-miners whose deaths were attributable to accident or illness and not especially to lung fibrosis, analyses showed an average of 4·1 g. total silica in the lungs of each man (1·15 per cent. of the dried lung). The ages of these men ranged from 36 to 69, and a study of the total silica content in relation to the ages is of interest; five men were below the age of 50, and their silica totals averaged 2·0 g.; for the remainder, 19 men over the age of 50 years, the average total was 4·5 g. None of these men was known to have been especially engaged in boring rock; they were representative of "ordinary" coal-miners exposed to the ordinary conditions of work underground. It may be taken that most of them started work in the mines at about 15, so that their total time of exposure to mine dust of all kinds varied from 20 to over 50 years. From the previous calculation, during such periods of time a total quantity of from 10 to 25 g. of silica is likely to have had access to the lungs. Since the amounts found were substantially less than these figures an important proportion of the silica inbreathed must have been disposed of by the drainage mechanisms of the lungs and passed on to other parts of the body or excreted.

That such disposal of silica can occur to some extent was first shown by Pirie and Mavrogordato,[9] who demonstrated the passage of silica to lymph glands below the diaphragm, and their observations were later repeated and confirmed by actual chemical analyses of lymph glands (Tideswell in ref. 1).

These figures and observations suggest that in the "ordinary" coal-miner exposed to minimal doses of silica year by year, the silica accumulates only slowly, a substantial part being in the earlier years passed on from the lungs. A prolonged or more intensive "bombardment" of the lungs causes progressive damage to the lymphatics, and favours an accelerating rate of accumulation of dust, siliceous or other, so that after age 50 the damage to the lungs from the silica fraction may have assumed serious proportions. Experience amongst the Welsh coal-miners certainly indicates 50 to 53 years as the "critical age" in this respect.

In those men who as rock-drillers (hard-heading workers) are exposed to a higher concentration of silica dust the cumulative effect is accentuated, and once the condition of silicotic fibrosis is established there is no chance of repair.

COAL-DUST ONLY

A study of some material available from coal-trimmers leads to the conclusion that coal-dust alone, apart from silica, cannot be regarded as a cause of serious fibrosis of lungs, and such minimal fibrosis as does occur in this class of worker can be explained as due to the action of traces of siliceous dust present even in high-grade "pure" coal.

Collis and Gilchrist[10] have shown from the Registrar-General's returns that coal-trimmers, like coal-miners, have an excessive mortality-rate from pneumonia and bronchitis, but fibrosis of lungs comparable with that found in rock-drillers or even in coal-miners has yet to be demonstrated among coal-trimmers.

In Tables I. and II. are given lung analyses from four trimmers and one ship's fireman, a comparable employment; their silica content is not high, though it will be noted that four of these men were well over the age of 50 and had had, so far as could be ascertained, many years of exposure to concentrated coal-dust. It is noteworthy that the older the men the higher was the percentage silica content in this small group.

SILICA QUANTITIES

In considering silica as a cause of pneumoconiosis it has to be remembered that the degree of fibrosis caused will be dependent upon a number of factors in addition to the most obvious one—viz., the amount of silica retained in the lungs. Such factors are the chemical state, free or combined, of the siliceous particles influencing their solubility in the tissues, the size and conformation of the particles, the presence of any non-siliceous coating or matrix on the particles, and, not least important, the period of time since the access of particles to the lungs. None of these factors is in practice easy to determine except the first, and that of course only in fatal cases.

How far then is it possible to say, with reasonable assurance, that a given fatal case has died as a result of "silicosis" when, as so often happens, the lung fibrosis found has been accompanied by pulmonary infections, tuberculous or other, and the heart condition itself has been an important factor in the death? On the basis of the experience related here I conclude that fibrosis of an important extent, clearly contributory towards death, is usually present when the silica content of the lungs determined chemically exceeds 1·0 per cent. of the dried lung substance. Quantities below this are not necessarily negligible but have seldom been associated with deaths attributable to pulmonary disease except when tuberculosis has intervened. When the silica content exceeds 1·6 per cent. the fibrosis associated is with practically no exceptions very severe and sufficient in itself to lead to death; this accords with the published records of many observers from various parts of the world. The analyses recorded here suggest that a silica content of as much as 1·6 per cent. causes so much damage to the pulmonary drainage system that the accumulation of further dust inhaled is rapidly accelerated; exposure therefore to silica risk at this stage greatly enhances the danger to life.

I desire to tender my thanks for the silica determinations to Mr. F. V. Tideswell, D.Sc., of the Safety in Mines Research Department at Sheffield, and to Mr. Clarence Seyler, of Swansea, and to acknowledge much valuable encouragement and advice from Prof. Lyle Cummins.

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OBSERVATIONS ON
LICHEN URTICATUS

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Lichen urticatus is one of the commoner skin complaints of children. According to figures published by Hallam,[1] it has furnished over 10 per cent. of all skin complaints seen at three children's hospitals in London during the years 1927–1930. The clinical picture and pathology are reasonably well established. Unfortunately, however, this is not the case with its ætiology.

Bateman was the first to describe the condition, in 1824, and his classical account has needed little further amplification to this day. Its diagnosis then usually presents little difficulty. It is by no means uncommon, however, in the out-patient department, for a mother whose child is a chronic sufferer to come up with the request "would the doctor kindly give her a certificate to the effect that the child has not got chicken-pox, as the new school doctor (or nurse) will insist that it has." Recently Chalke[2] has pointed out that cases have been referred to medical officers of health and to fever hospitals with the provisional diagnosis of small-pox. Occasionally difficulty can arise with the differential diagnosis of scabies, particularly when the lichen urticatus papules are secondarily infected.

Borderline cases are sometimes seen which tend to approximate to the condition known as prurigo of Hebra. Fully developed cases of this disorder appear to be much rarer in this country than in middle Europe. Ocasionally, however, pruriginous eruptions in children are so widespread and chronic that, even in the absence of lichenification and secondary eczematisation, it is difficult to consider them as only lichen urticatus. Possibly the two conditions are simply variants. Brocq[3] long ago pointed out that a whole uninterrupted series of "faits de passage" existed between urticaria, prurigo simplex (lichen urticatus), and prurigo of Hebra. Urticaria as seen in the adult is rarely seen in children and, vice versa, papular urticaria with well-marked vesicle formation is uncommon in adults. There are, however, so many points of similarity between the conditions that it is probably correct to consider their pathology as identical. They are both examples of the triple skin response of Sir Thomas Lewis, which is exactly reproduced experimentally by the action of histamine. It is supposed that histamine may be liberated in the cells of the skin by an antigen-antibody interaction. Such antigens are assumed to be most usually, but not necessarily always, of a protein nature.

Lichen urticatus would therefore fall into the group of allergic phenomena which provide one of the most difficult ætiological problems of medicine; as J. Freeman has pointed out, sufferers are apt to consult every type of specialist in turn. The lichen urticatus sufferer is perhaps luckier than most in that the condition is almost always temporary and disappears with the passing years.

ÆTIOLOGY

It must be stressed that there are many difficulties in trying to establish the ætiology of lichen urticatus. Mild cases are numerous and spontaneous recovery common. The majority of cases, therefore, are probably not seen either by the pædiatrician or the dermatologist or, indeed, by any doctor.

Most of the papers which have appeared on the subject (and this one is no exception) are based on only about 50 cases. There must be many sources of error in trying to establish any conclusions on so small a number of patients out of such a potentially large number of sufferers. In the past the most popular ætiological factor has undoubtedly been the alimentary one. The laity have for long associated urticaria with fish poisoning, and similarly lichen urticatus has usually been regarded as due to some dietary indiscretion. It is now well established that urticaria of adults can apparently be caused by a variety of factors other than alimentary, such as bacterial toxins, drugs, or simply emotion. Similarly, in lichen urticatus there are reasons for supposing that the alimentary factor is by no means solely responsible.

Hallam[4] in 1927 pointed out that in a series of cases thoroughly investigated by him recovery was the rule simply on admission to hospital, without any other treatment. As far as possible the diet given was the same as the patient had previously received in his own home. Hallam therefore concluded that food did not cause the condition in any way. As Lancashire[5] pointed out, there is here, of course, a possibility of error in that many odds and ends of diet might be given in the child's home which would not be classed by the parents as "diet." More recently, however, Hallam[6] has found that similar cure results simply from admitting the patients to hospital for the night and allowing them to spend the day in their ordinary milieu. He suspects the presence of an antigenic factor in the home bedding, but has so far been unable to detect it.

Corson[7] in America has investigated 31 cases very thoroughly from a biochemical point of view with almost entirely negative results. His conclusion is: "that very little information can be gained about this condition from laboratory studies." In only two of his cases was anything in the nature of a definite causative agent discovered. In one this was an oxyuris infection, in the other a sensitisation to egg and milk, as evidenced by skin tests. In both cases spontaneous cure was said to result upon taking suitable remedial measures.

One common factor is usually mentioned by all investigators—namely, heat. The condition is more common in the summer months. It is in fact frequently known by the mothers by the apt synonym of "heat spots," though they usually regard the excessive heat as being present in the child's blood. It is certainly very noticeable that many of the sufferers, even in the warmest of weathers, are encased in layers of woolly garments which must act as irritants, both mechanical and thermal.

In a review of 50 unselected cases seen during the last year at the Princess Elizabeth of York Hospital, Shadwell, the skin department of St. Bartholomew's Hospital, and elsewhere, I have been impressed by the possibility of a nervous factor in many cases. The mother's statement that the child is "a bundle of nerves" may not have any great scientific significance; it is, however, an objective observation which is perhaps too readily dismissed in the rush of an out-patient clinic, and may, indeed, have more bearing on the case than the most elaborate laboratory study. In talking to mothers, as far as possible without putting leading questions, this statement as to the child's temperament has been so often made that it was determined to follow it up. The mothers have been in all cases questioned as to:

1. Whether they have noticed that any particular article of food brings on an attack.
2. The "child rank" of the patient, and whether other children in the family, if any, have had attacks.
3. The child's general disposition—particularly in comparison with the rest of the family.
4. What effect changes of habitat, such as holidays or visits to relations, have had on the attacks.

It appears, firstly, in so far as one is justified in attempting to draw any deductions from such small figures, that the condition is particularly common in only-children or the first child; 50 per cent. belonged to this group. Next in frequency was the baby of the family or the youngest child, 25 per cent. belonging to this group. This finding cannot be regarded very seriously, but it is interesting in the light of some psychologists'—notably Adler's—views as to the importance of these two child ranks in producing neuroses. In 30 per cent. there was what one might call a definitely "nervous" history. Since many of them were, at any rate for the time being, only-children, this is perhaps not surprising. The mothers' statements were, however, more convincing when there were other children in the family, and it was surprising how often the lichen urticatus sufferer was the only one in the family with whom the mother had had "trouble." "It was so different from the others"; "jumps at the least thing"; "cries for no reason when spoken to"; "fidgets and wakes up screaming at night": are a fair selection from the notes taken. It may be said that these characteristics might be expected in a child with an irritable skin eruption, but the more intelligent mothers were quite definite that the eruption often followed an exacerbation of the "nerves," and did not precede it. In some cases they could foretell an attack by a day or two from the child's general demeanour.

In 10 per cent. the first attack was said to have followed an accident or shock, such as a bad fall. These mishaps are, of course, relatively common in childhood, and coincidence cannot be discounted. As an observation, however, it is as valid as, for example, an attack being noticed to occur after a meal of fried fish.

In two cases, both of the chronic intermittent variety, the child was said to be the reverse of nervous, being particularly daredevil and of the ringleader type.

Two histories in detail were:

1. Girl, aged 5. Bright, intelligent appearance. Said by her mother to have had two attacks in her life. The first was when, aged 3, she witnessed a brother being involved in a street accident. The second attack occurred recently and had lasted three weeks. The mother could not account for it, but mentioned that it had synchronised with the child going to school for the first time in boots. On investigation it appeared that the little girl had always worn shoes with buckles, and was extremely clumsy in undoing boots with laces, to which she was unaccustomed. At her school during some gymnastic performance, the children had to take off their boots, and this little girl, though top of the class, incurred the ridicule of the class and reprimands of the teacher by her slowness and clumsiness in struggling with her boots. The suggestion that boot drill be provided at home apparently proved beneficial, for the condition cleared up rapidly.

2. Girl, aged 4. Youngest child of four brothers. Attacks had lasted intermittently since 18 months old. The child was said to be "very different" from all the brothers, in that the methods employed in dealing with them did not appear to work with her. Appeared to resent being made to sleep separately from her mother. Attempts to make her do so always resulted in bad attacks.

It was particularly noticeable that such histories were commonest in the more chronic type of case.

With regard to food, the usual report was that the spots were made worse by some articles of diet, excess of sweets and porridge being most often incriminated. In no case, however, could a clear history be established of attacks following the resumption of some article of diet which had been previously omitted. This was tried with bananas, egg-white, milk, porridge, and sweets. In general, the effect of food seemed very difficult to assess, and to depend more on an unbalanced diet than a food idiosyncrasy.

Changes of habitat seemed in some cases to bring on attacks. In three cases it was mentioned that attacks always occurred when the child went to the sea. On the other hand, a bad bout always seemed to be cured by "a change of air."

The exanthemata figure as a very real predisposing factor—"he (or she) came out in them when he (or she) came back from the fever hospital"—occurred in ten cases; in five of them this was the first attack, and in three there had been no previous attacks for some months. It appears that after the exanthemata the skin possibly remains for some time in a state of locus minoris resistentiæ.

Many of the cases, on account of their tender years, had escaped tonsillectomy. The evidence of nasopharyngeal infections as a predisposing cause was not very marked. In a few cases sore-throats were doubtfully regarded as preceding attacks. In two instances when septic tonsils had been removed the condition had cleared up for two months and then relapsed in statu quo. In only half a dozen instances was more than one member of the family affected, which would seem to render an exogenous ætiology such as insect bites unlikely.

TREATMENT

Only four cases were admitted to hospital; these all rapidly improved, fresh lesions ceasing to appear very soon after admission. All the cases at some period or other were put on a bromide mixture containing ammonium bromide grs. i–ii for each year of life, t.d.s., and given a calamine and phenol lotion. As an adjuvant in some cases, particularly in pale debilitated-looking children, general carbon-arc baths appeared to be of great value.

Starting with a profound scepticism as to the result of any internal treatment, I was impressed with the unexpectedly good results. It cannot be pretended that all cases were rapidly cured. Since the condition, at any rate in my opinion, is of the nature of a syndrome, it is unlikely that any uniform line of treatment, particularly by drugs, will be universally applicable. But the results were definitely better than those which resulted in previous years from the administration of "hyd. cum cret." or "gent. cum rheo." Five cases of the chronic type with a well-marked "nervous" history remained well while on the bromide mixture, but relapsed on stopping it. They had all had previous treatment with the other drugs as well as attempted desensitisation with Aolan, both subcutaneously and intradermally—all without result. In two cases, when the mother had noted a well-marked "food" history, fresh attacks did not occur whilst on the mixture, though the incriminated foods were again introduced into the dietary.

DISCUSSION

"*Post hoc propter hoc*" is notoriously an unsatisfactory method of attempting to establish an ætiology, and lichen urticatus is a particularly unsatisfactory condition in which to try out this hoary method. As has been stressed before, spontaneous and unaccountable recovery is common. Patients are also difficult to control. Many of them do not return for examination, even though asked to. Possibly they recover, but quite probably the mother ceases to worry when she gathers that the condition is not infectious. When parents are brought under control—i.e., in hospital—they all apparently get better.

That a skin lesion—in a child said to be "nervous"—should improve upon the administration of bromides is obviously very slender proof that such a condition should be considered to be what W. J. O'Donovan calls a "dermatological neurosis." It is not pretended that lichen urticatus is this in every case. It can certainly be the result of an overloaded colon, a food idiosyncrasy—as in a case quoted by Burgess [8]—or indeed from any peripheral irritation. There are, however, some general considerations which suggest that in some cases at any rate a psychological factor, in the widest sense of the term, may play a greater part than has usually been admitted.

1. The alimentary factor must be largely discredited if Hallam's observations are confirmed.
2. It is perfectly possible that the beneficial effect of hospitalisation may be due to an antigenic factor in the child's home; the psychological explanation is as simple. Far less dramatic changes of air seem to act as curatives. There must be many factors in the sleeping arrangements of the poorer families, who are so particularly susceptible to lichen urticatus, which can give rise to mental trauma as well as physical discomfort.
3. Shock and anxiety states have often enough been recorded as apparently the only cause of an acute attack of urticaria. In the writer's opinion an underlying disturbed mental state is the commonest finding in chronic cases.
4. In all allergic phenomena, particularly asthma and eczema, the psychogenic factor is regarded as of great importance. Whether it is only a predisposing condition or a direct causative agent is still a matter of opinion.
5. Even in such a definite dermatological condition as lichen planus, with its well-marked histopathology, there is so frequently a history of strain, worry, anxiety, or shock, that one is tempted to credit such factors with being direct causative agents. Though by what mechanism an anxiety state produces a lichen planus papule is certainly not yet explained except by invoking the endocrino-sympathetic system.

It is interesting to note that the carbon arc has proved beneficial, since heat is so universally regarded as a causal factor. Undoubtedly part of its beneficial action has been simply in aiding the skin to perform its natural function by the stimulation of light and air, from which the bodies of so many poor children are still rigorously excluded. In one child—definitely of the prurigo Hebra type—under observation for two years, actinotherapy, in default of heliotherapy, was the only thing which helped in the slightest. On two occasions he went to Hayling Island for a sojourn of two months, and on both occasions came back completely free. He relapsed after a few weeks on being reintroduced into his home circle, which was of the most unfortunate nature, including a hopelessly ignorant mother who insisted on scrubbing him with ung. sulph. and hermetically sealing him in filthy woollen garments.

In addition, however, to this "nature cure" effect, actinotherapy is credited with having a direct effect on the metabolism and the endocrino-sympathetic system. This seems not unreasonable when one considers the intimate connexion of the sympathetic system with the skin.

I wish to express my thanks to Dr. A. C. Roxburgh for permission and encouragement to investigate cases seen at St. Bartholomew's Hospital.

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Clinical and Laboratory Notes

TEMPORO-SPHENOIDAL ABSCESS DUE TO A VARIANT OF FRIEDLÄNDER'S PNEUMOBACILLUS

BY J. GAY FRENCH, M.S. LOND., F.R.C.S. ENG.

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THE patient, an agricultural labourer aged 39, was admitted to the Royal Free Hospital on Jan. 9th, 1933, with the history of an acute left earache with discharge. This commenced a week before Christmas, 1932. On Dec. 23rd he developed facial paralysis and on Jan. 9th he became comatose and was sent up from the local hospital.

On admission he was roused with difficulty when shouted at, but would sink again into the comatose condition. Temperature 99° F., pulse-rate 56, respirations 20. Examination locally showed the left external auditory meatus to be full of pus, and a marked swelling and tenderness existed over the mastoid process. In addition there was a complete infranuclear facial paralysis of the same side and on ophthalmoscopic examination papillœdema of the left fundus oculi.

Lumbar puncture was performed, the cerebro-spinal fluid came out turbid and under considerable pressure. Pathological report stated 740 cells per c.mm., chiefly polymorphonuclears with a fair number of large endothelial cells; no organisms could be detected with Gram and methylene-blue stains. Cultures were negative at the end of 15 hours. After the lumbar puncture the patient became much less drowsy and could answer questions, but again lapsed into his comatose condition within half an hour.

Operation was performed the same evening, under intratracheal ether. The mastoid was opened and was found to be of a very sclerotic type, the antrum was small and full of pus, the whole roof of the attic had undergone necrosis; œdematous granulation tissue over the dura mater projected into the attic. The mastoid incision was carried upward over the left temporal and parietal bones and the skull opened. The dura bulged into the wound under considerable tension, no pulsation being present. A vertical incision through the dura was made over the temporo-sphenoidal area, and a brain forceps introduced in a forward and downward direction—a quantity of thick brown and very offensive pus under definite pressure shot out of the wound; the cavity was about the size of a hen's egg with necrotic walls. This was washed out with hot 1 in 2000 hydrarg. perchlor. solution, and a rubber drainage-tube fixed in position, the wound being left open with the rubber drainage-tube in the abscess cavity and sutured to the skin.

Further course.—The patient remained in a comatose condition for eight days with incontinence of urine and fæces. At 3 P.M. on the day after the operation 20 c.cm. of a 0·5 per cent. solution of mercurochrome were injected intravenously. This was repeated at 8 P.M. and again on the following morning, making 60 c.cm. in all. Hypertonic saline was given by rectum.

On Jan. 15th the pulse-rate had risen to 72, the temperature remaining at 99°. On the 18th he developed a paralysis of the right arm which cleared up six days later. On the 19th he seemed more alert and intelligent and did not lapse into coma again. By the 27th the facial paralysis cleared up completely. He was discharged to a convalescent home on Feb. 2nd.

The pathological report was as follows: "The organism isolated from the cerebral abscess is a Gram-negative non-motile bacillus forming white slimy colonies on ordinary media, offensive smell on culture, but not liquefying gelatin nor forming indol. Saccharolytic properties limited to fermentation of glucose. The organism is best classed as a variant of Friedländer's pneumobacillus."

I have to thank my house surgeon, Miss I. M. Cullum, M.B., for the notes.

DECOMPOSITION OF ANÆSTHETIC ETHER

A SIMPLE PREVENTIVE

By H. O. Nolan, LL.D., M.D. Lond., F.I.C.

The occasional untoward effects of ether on the respiratory organs are generally attributed to oxidation products, especially peroxides. Anæsthetic ether now comes to us free, or almost free of peroxides. But, in contact with air, these soon form; exposure to light accelerates the oxidation. A partly used bottle of ether need stand but a short time for its contents to give a strong peroxide reaction.

Ideally, one should reject, for purposes of anæsthesia, any ether contained in a bottle which has stood after being opened and partly emptied. But this is, for the general practitioner, a counsel of perfection. A simple and certain method of preventing the oxidation of ether should, therefore, be welcome. Such a method is the addition of a trace of hydroquinone; half a grain (a very small pinch) to 4 oz. of ether is sufficient; excess is harmless.

In an experiment that I made in the laboratory of Sir Frederick Hopkins, at Cambridge, a trace of hydroquinone completely prevented the formation of peroxide in ether contained in a colourless, half-empty bottle exposed, during six months, to diffused light with occasional sunshine. A control, standing beside the test, gave a strong peroxide reaction. Resorcinol (resorcin), though not entirely without action, was very much less effective than hydroquinone. Afterwards I learned that an immeasurably more thorough investigation of ether oxidation had already been carried out by Mr. Geoffrey Middleton in the laboratories of British Drug Houses, Ltd. Mr. Middleton, also, had found that hydroquinone (as well as benzidine and pyrogallol), in minute quantities, prevented the spontaneous oxidation of ether. One part of hydroquinone to 5000 parts of ether is sufficient.

Hydroquinone is odourless and non-volatile; it is, therefore, harmless to the patient. It can be bought anywhere.

This use of hydroquinone is an extension of Moureu's work on the amazing anti-oxidant catalytic action of aromatic hydroxy-compounds, especially those having two hydroxyls in the ortho- or in the para-position. Those with the hydroxyls in the meta-position are much less active; hence the relative inefficacy of resorcinol.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF UROLOGY

At a meeting of this section held on July 6th the chair was taken by Mr. Clifford Morson, the incoming president. An address on

Conservation in Urology

was read by Dr. Henry G. Bugbee (New York). He said that the advance in the last decade and the general trend of urology to-day could be best summed up in the one word conservation. The progress from diagnostician to therapeutist and surgeon had been a logical one for the urologist, but the first two decades of the century had largely been occupied by the specialty's struggle for recognition. The rôle of the general surgeon in urology was that of a technician, for he was but carrying out specifications supplied by the urologist, who was, moreover, better fitted to carry out the important preparation and after-care. There had been an evolution in methods of restoring urinary function, and first of all factors in this process had been realisation of the association between the urinary system and other parts of the body, and the general study of infection and the body's resistance to it. The removal of the primary focus might be a simple matter or might involve complicated investigations of the bodily functions. The endothelial cells of the kidney capillaries possessed a remarkable phagocytic power, but this was diminished by back-pressure. Obstruction was due to many causes, of which the extrinsic were by no means unimportant. Emphasis had been laid on the association between urinary infection and gastro-intestinal dysfunction and infection; the two systems could not be separated, and associated diseases might rise from a single source. Such considerations had led to a tendency towards "medical" treatment—for example the ketogenic diet—and to conservative measures when surgery was necessary. Especially was this true of children. Preventive measures had also reduced urinary complications in pregnancy. Ligation of obstructive vessels, plastic manœuvres, and hemi-nephrectomy were now preferred to nephrectomy. Recent studies based on better knowledge of kidney pathology, operative technique, and diagnosis had led to the recrudescence of nephropexy, which had a definite field of usefulness. Urinary tuberculosis afforded an illustration of the close association between urinary and general conditions; it was much more often bilateral than was generally supposed, and always secondary—usually to a pulmonary lesion. The healthy kidney did not act as a filter to bacilli; every experimental animal with tubercle bacilli in the urine had renal tuberculosis. These lesions might be symptomless and might often heal; many early cases were overlooked, and the cases seen by the urologist were usually advanced, unilateral, and curable only by surgery. Every effort should be made to use all the general hygienic measures available. Genital tuberculosis was frequently present as well.

Calculous formation had also been carefully studied. Deficiency of vitamin A and the ingestion of certain foods seemed to play a part. The precise cause of stone formation was not yet, however, understood. The urologist had supplied data of constructive value in this subject. The association of infection and lithiasis was being increasingly supported by experimental work. The logical treatment was preventive, but this depended on better knowledge of ætiology. Most ureteral calculi would pass after ureteral manipulations, but it was futile to persist in these if there was associated disease.

Probably the greatest value of urography lay in checking up other methods of diagnosis and the results of operation. It might give unreliable information in reflex anuria and tuberculosis. It had, however, furnished invaluable data in the study of the urinary tract, as had also the chemical tests of renal function. The sulphone-phenol-phthalein test had proved so reliable that it should become increasingly important in the future. The presumption of malignant growth in patients suffering from symptomless hæmaturia, until the contrary was proved, had led to earlier diagnosis of cancer. There was still no unanimity of opinion on the treatment of bladder tumours; good results were claimed by the adherents of resection, radium, and diathermy. The same might be said of prostatic cancer. A routine rectal examination of all men over 50 was an important part of any health investigation. Treatment by radiotherapy had largely supplanted the more radical surgical measures for new growths of the testicles, and in every branch of urinary pathology conservatism was saving kidneys which would formerly have been removed.

The operative relief of prostatic obstruction had been raised to a high level at the beginning of the decade, but further advance had been made by means of local anæsthesia, better understanding of the underlying processes, and after-care. The development of the prostate was now known to be due to the action of the pituitary on the testis, and prostatic enlargements could be experimentally produced by modifying the endocrine system. The nerve control of the urinary tract had been much studied, especially the sympathetic system; and the results had been applied. Some painful affections had been relieved by nerve section, a measure which had also been suggested for recurrent stone and for reflex anuria. Little could be known in the absolute and all was relative; medical advance, and especially urology, demanded an open mind and a constantly changing attitude. Future progress would be towards prevention, and regular physical examinations of "healthy" people were important. Discomfort was often the first symptom of disease, and a careful search for its cause would go far to prevent the development of serious conditions. Further researches into ætiology and symptomatology were also needed. Victory for the surgeon lay in saving an organ or tissue rather than in its removal.

Mr. SWIFT JOLY, proposing a vote of thanks to Dr. Bugbee, said that the principle of conservatism was the ideal, but required that the patients should be in the ideal condition for conservative surgery. They were usually seen only when the disease was far advanced, and in such cases conservatism was quite out of place. His own tendency, after following up patients for many years, was to become far more radical. Early cases of tuberculosis could rarely be diagnosed and usually cleared up of themselves; these minute lesions were very common in all forms of tuberculosis. Only when the disease became engrafted in the renal pelvis was the clinical picture clear, and by that time conservatism was useless.

Mr. JOHN EVERIDGE seconded the vote of thanks, and spoke of the value of Dr. Bugbee's contributions to urological literature. His warnings about transurethral technique in prostatic surgery should be carefully heeded.

MEDICAL CONFERENCE ON CONTRACEPTION

A CONFERENCE was held under the auspices of the National Birth Control Association and the Birth Control Investigation Committee on July 8th. In the morning Mr. C. W. BELLERBY gave an address on recent researches on temporary hormonic sterilisation, Prof. JULIAN HUXLEY presiding; and Mrs. L. M. JEFFREYS, M.D., Mrs. F. IVENS-KNOWLES, M.S., and Dr. A. G. M. SEVERN spoke on public health authorities and information on contraception, with Dr. HELENA WRIGHT in the chair. Lord HORDER presided at the afternoon session, when Mr. JOHN BAKER, Ph.D., and Mr. H. M. CARLETON, Ph.D., gave a communication on chemical spermicides and their effects. Dr. E. F. GRIFFITH then read a paper on

General Practice and Information on Contraception

For the purposes of this communication Dr. Griffith had ascertained from his first 100 cases how many had attempted to limit their families, and what methods they had adopted before consulting him. Thirty-four had bought some contraceptive appliance or soluble, and six of this group had practised coitus interruptus as well; 52 had practised coitus interruptus only; 6 had recently had their first babies, and were then proposing to use some method; 1 had an imperforate hymen; and 3, although wishing to use some contraceptive device, had not done so because their husbands objected. Only 4 had made no attempt. These figures, though small, indicated that family limitation was established. Further analysis had shown that 41 had had no sexual satisfaction with the method used; 52 were mainly indifferent; and of the remaining 7, 4 had had instruction from Dr. Griffith before marriage. Of those who subsequently received instruction in proper contraceptive methods, 40 stated that the teaching had made "all the difference." Dr. Griffith doubted whether the profession was aware of the extent to which coitus interruptus was practised. It was, of course, the cheapest and easiest method, but its uselessness and harmful effects were generally recognised.

The public were able to obtain information on contraception from some general practitioners, specialists, and clinics, but it was also presented with vast numbers of quack remedies and advertisements which were often quite unreliable. The public was prevailed upon to pay exorbitant prices, and to buy imperfect stock. One type of chemist might suggest some size of cap; appliances were proffered by men who went from door to door; sheaths might be obtained from automatic machines and even garages. In this way the birth control movement had been brought into disrepute. Inefficient advice was also given, doubtless with the best of intentions, by a certain section of midwives; the time had come for midwives to receive some instruction during their training so that they could see that their patients were referred to proper authorities. At the same time it should be explained to them that they would not lose their practice by encouraging sane birth control. In the course of routine examination of this series of cases, Dr. Griffith had found 22 women to be suffering from some intercurrent gynæcological condition requiring treatment, of which the patient was more or less unaware. He considered that the sale of contraceptives should be prohibited except on the recommendation of a medical practitioner. The advertisement of contraceptives should be prohibited entirely, and only sheaths of a certain standard of reliability should be permitted on the market. He had found some women incapable of carrying out present methods of contraception. Such women, who for medical reasons should not have further pregnancies, should in his view be sterilised, although this presented some difficulties: the moment one confinement was over the woman was in immediate danger of becoming pregnant again. The carelessness and stupidity of some women was amazing. In spite of the most careful teaching they might at times neglect all precautions or use caps with holes in them. Dr. Griffith had fitted the Dutch cap in 51 cases, the Racial in 28, the Dumas in 10, and the sheath in 8. Recently he had been trying two contraceptives: the one, containing hexyl resorcinol, was used by itself and was simpler; the other was a jelly containing saponin and citric acid; they were made by the same firm. Among the 100 cases there had been 28 failures; 9 had been lost sight of, 5 had changed to the sheath method, 1 was utterly unteachable, 7 had not carried out the instructions continuously, and 3 would not take the trouble. One failure was attributed to the faulty fitting of a Dutch cap, and two occurred where a Racial cap was being used.

Knowledge of contraceptive methods did not necessarily mean a declining population. One authority had stated that where less than two years intervened between births the chances of the life of the infant were almost halved in comparison with those born after two years or more. Obviously the survival-rate was the important factor. In Holland, where the knowledge of contraception had been easily obtainable for the past 40 years, the survival-rate had gone up and the population was increasing. The incidence of venereal disease and abortions had decreased, and the marriage age was appreciably younger. Rational birth control had its place in preventive medicine in the same way as antenatal and postnatal work. Improvement of the maternal mortality might be brought about when the debilitated women who crowded the antenatal clinics were prevented from having a superabundance of children. Much improvement in the health of the children might be made if the medical profession would teach birth control and make themselves proficient in its technique. Belief in its benefits should be fostered in the profession by the local medical societies. Those practitioners who undertook to teach their patients should keep careful records of their cases, and should be really competent to fit the different caps. Dr. Griffith gave details of how he conducted his cases. Two rooms in his house were specially fitted up to ensure privacy and to facilitate the work. The patient's name was entered on an index card, and the particulars of the case (without her name) on a separate numbered card, provided by the Birth Control Association. She was then examined in the other room and fitted with a suitable cap; she was taught the technique by a competent midwife who had been specially trained at one of the London clinics. Then she was sent home to practise fitting the cap, to return after a week, or she was given printed detailed instructions, was provided with all requisites and told to return or write when she required more. She was told that she would be asked to return in about ten months and she was reminded when that time came. This system had been taken from the larger clinics. Where, in the course of routine examination, an intercurrent disease was discovered the patient's doctor was notified.

In conclusion, Dr. Griffith urged that the need for birth control was present, and that the medical profession could no longer afford to shut its eyes to the problem.

DISCUSSION

Dr. JOAN MALLESON said that she agreed with almost all that Dr. Griffith had said. She wondered, however, whether he would seriously wish to put the sale of all contraceptives under medical control since such a regulation would put the still unmarried person at a dreadful disadvantage. She considered that practitioners should make an opportunity for their married patients to talk with them on birth control. She was glad to think that thanks to the teaching of the Birth Control Association cases of anxiety neuroses engendered by lack of sexual satisfaction received more sympathetic treatment now than in the past.

Dr. L. C. BUTLER said that in the course of school medical work she had met many mothers who were very eager to discover the address of birth control clinics.

Dr. J. A. DAVIDSON described an occlusive pessary which was slowly soluble. It was made of a glycero-gelatin base with aluminium sulphate and acid sodium sulphate. It had two advantages: it remained effective all night, and it could be sold cheaply.

Dr. KILLICK MILLARD considered that the male sheath was one of the most useful and effective appliances if the technique were taught as well as that of the Dutch cap.

Mrs. EVELYN FULLER said that the Walworth birth control clinic provided printed instructions for the men patients.

Mr. C. I. B. VOGE, Ph.D., attributed the poor results obtained with sheaths to the fact that they were manufactured on an enormous scale, and for the most part were passed untested to the public. Sheaths might be more favourably regarded if they were purchased only from reputable shops. In reply to a question he said that the "Durex" type was made of rubber which had been coagulated by hot water instead of by sulphur.

Mrs. SPRING RICE put forward a plea that those doctors who were in favour of contraceptive teaching should urge the teaching hospitals and post-graduate classes to include the subject in their courses.

Lord HORDER agreed with the previous speaker, saying that he himself was hoping by gradual means to persuade the staff of one large hospital to teach contraceptive technique to the students.

Dr. GRIFFITH, in reply, explained that although he might not wish to keep contraceptive appliances entirely under medical control, he thought it a pity that the public should be able to buy ill-fitting caps from a shop. Public advertisements of appliances should most certainly be forbidden. He had found sheaths unsatisfactory as the poor bought unreliable stock, and most men disliked using the sheath.

REVIEWS AND NOTICES OF BOOKS

Human Values in Psychological Medicine

By C. P. BLACKER, *M.C.*, M.A., M.D., M.R.C.P. London: Oxford University Press. 1933. Pp. 179. 8s. 6*d*.

THE concept of value is fundamental to all the normative sciences. In the field of pure biology, value can be regarded simply as the relationship of an organism to its environment measured in terms of adaptation. In the economic sciences value in exchange, as Dr. Blacker points out, can have a fairly strict connotation. In the field of ethics, where supposed absolute standards are under consideration, value, or rather worth, becomes a subject for logical exposition. When, however, human psychology is considered, the concept of value is coloured through and through with relativity.

Dr. Blacker's book is characterised by great breadth of treatment and although he wisely refrains from drawing dogmatic conclusions from material which is always personal and in a state of flux, he has taken great pains to consider the various views that have been held on human values from those of Plato to those embodied in the recent work of W. Urban whose prolixities he has been able to fathom. He shows from his study of psychopathic conditions that the concept of value, while logically definable, has extraordinary diverse manifestations varying not only in mode but in accordance with the mood of a patient and his social and æsthetic background. In a noteworthy chapter on exogenic and psychogenic realities, he argues from biology and psychopathology that it is important to realise the distinction between the private world and the world of mind made by environmental conditions.

The whole work is stimulating if not altogether constructive. Each chapter contains pregnant remarks based upon considerable biological knowledge and a philosophic insight of which Dr. Blacker in his preface too humbly denies the possession. This book should be read by all psychopathologists and by those general physicians who realise the fact that their daily work involves the practice, conscious or unconscious, of psychological medicine. At times this insight brings trouble with regard to fundamental principles; physicians are liable occasionally to feel disturbed when their absolute scale of values appears to be upset or questioned by the ethical neutrality which psychopathology imposes upon its practitioners. This book will help them by defining the issues and thus strengthening the power of detachment which is such an important therapeutic weapon.

Streptococci in Relation to Man in Health and Disease

By ANNA W. WILLIAMS, M.D., First Assistant Director, Bureau of Laboratories, Department of Health, City of New York. London: Baillière, Tindall and Cox. Pp. 260. 29*s*.

Dr. Anna Williams is well known as an experienced and competent bacteriologist who for many years has made a special study of the streptococci. From her vantage point as assistant director in the Bureau of Laboratories, Department of Health, New York, she should be in a position to give a well-informed account of the present position of this difficult subject. That her monograph is somewhat disappointing is perhaps more the fault of the subject than of the author. Much of that which passes for accepted knowledge about the streptococci still rests on an insecure basis. The main effort of the author of a compendious account of this group of bacteria might properly have been directed to the separation of the wheat from the chaff; but Dr. Williams can hardly be said to have faced this task in a determined mood. The question of classification, for example, is handled loosely, and this exposition is not likely to make an obscure subject any more clear. A great volume of experience is now available on the subject of Dick-testing and active immunisation; yet the short account given is neither practical enough to instruct the general medical reader, nor critical enough to appeal to the bacteriologist. The effort to cover the outlying and problematical aspects of the subject has given to some of the section headings somewhat of a "snakes in Ireland" quality. Thus there are sections on the chemotherapy of streptococcal infections, on the streptococci in poliomyelitis, encephalitis, fibrositis, &c. A full chapter is devoted to the rôle of the streptococci in rheumatic fever and allied conditions, which opens a difficult subject but does nothing to clarify it. Important work is here omitted; the book was no doubt published too early to incorporate a reference to A. F. Coburn's most recent and perhaps most telling contribution, but it is difficult to excuse the absence of any mention of the work of W. R. F. Collis and W. Sheldon. The sections on streptococci in relationship to milk-borne epidemics are among the best in the book, and are of especial interest to workers in this country where such epidemics are rare.

British and American opinion on the major problems presented by the streptococci has diverged rather considerably during the last two or three years, and we would have welcomed a more forceful exposition of American views. In short, this monograph seems already a little out of date, and the presence of several misprints, often of an obvious kind, is not calculated to enhance the reader's confidence in the care with which it has been compiled. This is not to say that the work can safely be neglected by anyone who is interested in the streptococci, though it fails to give a satisfactory presentation of this vast subject as a whole.

Therapie in Einzeldarstellungen Bewertung der Ovarialtherapie

By ERNST LAQUEUR, G. A. WAGNER, and R. VON DEN VELDEN. Leipzig: Georg Thieme. 1933. Pp. 108. M.6.

THIS little book on ovarian therapy though of considerable interest is of little practical value. Laqueur gives a short account of the theory of ovarian therapy. He describes the various ovarian hormones and suggests for which gynæcological disorders the ovarian hormones should be used. He does this, however, in a most unusual way, for he attempts to adopt almost a mathematical analysis. For example, he states that the three principles which must be borne in mind are (1) the material available, (2) the diseases, (3) a number of test cases; and he introduces a mathematical formula which is almost a Fourier series to indicate what ovarian therapy should really be. This method of approach, although healthily sceptical, is not likely to appeal to the practitioner. Wagner's article deals solely with the clinical side and indicates the various forms of gynæcological complaint which are suitable for ovarian therapy. This account is well written and will be read with interest. One of the remarkable features of the book is the absence of enthusiastic recommendation of any of the preparations available. If the purpose of the book was to give practitioners a theoretical basis upon which they could build up their therapy, rather than to give them dogmatically a series of remedies the utility of which might be questioned, the authors have achieved it. But many readers will be unduly discouraged after studying it.

Diagnosis and Treatment of Postural Defects

By Prof. W. M. PHELPS and Prof. R. T. H. KIPHUTH, of Yale University. London: Baillière, Tindall and Cox. 1933. Pp. 180. 23*s*.

IN a period both of controversy and flux in the realm of physical education we welcome this sane book. The subject of posture is at the moment largely occupying the minds of those, both here and in America, who are interested in national physical health. The White House conference paper recently issued by an investigation committee in the States showed the deplorable percentage—80—of postural defects found even in good schools. Recent investigation on a smaller scale here, chiefly undertaken in council schools and institutions, show almost the same high percentage of defects. It is of national importance that this state of affairs should be remedied. The efforts at present directed to this end seem to be ineffectual, since all the children under observation were undergoing some recognised form of physical education. Eliminating for the moment adverse nutritional and environmental conditions, the results, even if better than in the past, seem to be poor. The reason is clear from tests in which classes of children were divided, some doing special postural exercises, and the controls continuing so-called callisthenics—i.e., the normal physical training in the States. They found the former not only improved in posture but in general health, and resistant to epidemics. Similar results are obtained here by Miss M. Forrester-Brown's postural work in the western counties. We are driven to infer that in both countries physical education as taught in the schools does not aim for or achieve the intended result—a good physique as evinced by good posture—or separate so-called "postural exercises" would not be needed.

This book presents clearly and rationally the fundamental facts pertaining to posture. It gives an analysis and diagnosis of normal healthy posture, and it shows the steps of transition from the normal to the abnormal. These facts are known to everyone who has studied the living body. No new ones are presented, but those set out are used logically to suggest appropriate corrective and prophylactic movements which are in turn clearly explained and illustrated. The authors have recapitulated concisely the fundamental meaning of any true educational gymnastic system—that such a system must rest on the foundations of a working knowledge of the living body and, whether educative or remedial, its movements must be based on applied anatomy and physiology and be taught with an eye to form and a sound conception of normal structure and activity. Although, therefore, the book contributes little that is new, and, as a matter of fact, does not in detail justify that part of its title which promises an account of actual treatment of many defects, we welcome it for its sane, clear exposition of principles; for their recognition and application should go far to remedy the relatively poor practical results obtained at present.

Nudism in England

By the Rev. C. E. NORWOOD. London: Noel Douglas. 1933. Pp. 48. 2*s*.

THIS short book puts the case for nudism vigorously and well. Not only with a hygienic purpose is the practice advocated; it is also represented as having psychological value in that it would enable certain manifestations of the sexual instinct to develop more openly and naturally than is possible at present. The author sees, in the opposition to nudism, an expression of that dualism between spirit and matter which in the past has exercised a harmful influence upon religion. "With dualism," writes Mr. Norwood, "naturally went an ascetic practice—for the body, being evil, was to be mortified, and it is not surprising that Christian joyousness was poisoned by an alien asceticism. It is now being realised that this old element of dualism has to be purged from Christian thinking, and it is confidently to be expected that an increasing number will realise that one practical result of this dualism has been the ban on nudity, and that with the repudiation of dualism will go the removal of the prejudice against human nudity." Whether or not this prophesy is correct the student of social tendencies will be interested in reading a good exposition of this one.

A New Approach to Dietetic Therapy

By EUGENE FÖLDES, M.D., formerly Assistant Professor of Medicine, University of Budapest. Boston: Richard G. Badger. 1933. Pp. 434. $5.00.

Dr. Földes has here attempted to apply the rules of physico-chemistry to the phenomena occurring in the animal organism. Many of these phenomena can now be described in terms of diffusion, osmosis, and membrane equilibrium. The chloride content of the tissues and of the blood are thus linked, and Dr. Földes suggests that the excretion of hydrochloric acid into the cavity of the stomach can be described as a physico-chemical process. It may be assumed, accordingly, that a similar equilibrium exists between the blood and intercellular fluid, and between the intercellular and intracellular fluids. The whole organism is thus a single physico-chemical system, and changes in the chemical or physico-chemical composition of a part of this system are followed by changes in the rest. For practical purposes water and minerals are inseparably connected as regards retention and elimination. That there is a retention of water and minerals in certain diseases of the kidneys and of the heart, and in a few other conditions, such as myxœdema, is well known; Dr. Földes suggests that in many other diseases there is an invisible retention. This may take a general form or may manifest itself as a mobilisation and local accumulation of water and minerals previously retained throughout the body.

Retentions may, he holds, develop not only as a consequence of insufficient kidney function, but also as the result of insufficient functioning of the cellular layer which excretes hydrochloric acid. Gastritis may be followed by insufficient elimination

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Vide B.M.J. 13/5/33, pp. 823-4.

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Vide B.M.J. 3/6/33, p. 986.

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THE LANCET

LONDON: SATURDAY, JULY 15, 1933

RADIUM BEAM THERAPY

Rather more than a year ago the Radium Commission decided to disassemble the large single unit of radium entrusted to its care and to make other use of the smaller units into which it was divided. This decision provoked a good deal of public criticism at the time, but the policy of the Commission was endorsed by a conference[1] of leading members of the medical profession, including the presidents of the Royal Colleges and of the Royal Society of Medicine, the chief medical officer of the London County Council, and representatives of the Medical Research Council, the British Medical Association, and the Radium Commission itself. But the conference went on to appoint a technical committee to inquire into the scientific case for mass radiation by radium and to determine the advantages and dangers attaching to the use of such radiation. This technical committee made its final report to the conference in December last.[2] "All the evidence before us," said this technical committee, "goes to show that the use of massive units of even the largest dimensions can be so completely controlled that the safety of the patient is assured. . . . We are satisfied that there is no foundation for the idea that the use of a massive unit is necessarily associated with any special danger to the patient. . . . We are convinced that a large radium unit should be erected in this country, under conditions where such coördinated effort is possible, consisting of not less than 5 grammes of radium element." The conference adopted without hesitation the view of its technical committee that such a unit should be established.

Since this decision was taken very important negotiations have been in progress which matured at a meeting held at the Radium Institute on Tuesday last. A body has been formed, to be known as the Radium Beam Therapy Research, consisting of seven governors of whom the chairman is Sir Gowland Hopkins (representing the Royal Society), the vice-chairmen Lord Dawson of Penn and Sir Holburt Waring, presidents for the time being of the Royal Colleges; the other members being Mr. Wilfred Trotter (for the Medical Research Council), Sir George Blacker (for the Radium Institute), Lord Rutherford (for the Department of Industrial and Scientific Research), and Prof. A. J. Hall (for the Radium Commission). Largely owing to the good offices of Prof. J. C. M'Lennan, the Union Minière du Haut Katanga, which has at its disposal a large amount of radium, has agreed to loan 5 grammes of radium element—and later, if necessary, a further 5 grammes—to the Radium Beam Therapy Research on terms similar to those given to the Radium Institute in Paris. This means in effect that no charge will be made for the radium other than that necessary to secure its safe conduct and maintenance. This loaned radium will be located at the Radium Institute in Riding House-street, London, W., which has undertaken to provide the accommodation necessary for its disposal, and to accept patients treated by beam therapy on the same terms as if they were treated in other ways.

The governing body of the Radium Beam Therapy Research has appointed an executive research committee, with Prof. M'Lennan as chairman, which will include two clinicians, with Mr. Geoffrey Pearse (representative of the Union Minière in London) as technical physical expert, and possibly a physicist in addition. Two medical men will be selected to carry out research under the guidance of this committee. The value of beam therapy has already been proved to the satisfaction of the conference in a limited field, and this new development will give the opportunities for the coördinated clinical, physical, and experimental research which are still necessary to show how far these limits can be extended.

TWENTY-ONE YEARS OF NATIONAL HEALTH INSURANCE

To meet those responsible for creating, fashioning, and launching the first National Health Insurance Act in the United Kingdom, which came into operation on July 15th, 1912—so runs the invitation—the committee representative of the national organisations associated with the present administration of national health insurance are giving a luncheon on Monday next at which the Minister of Health will speak for the administrators and Mr. Lloyd George for the creators, the fashioners, and the launchers. When considering the results of a scheme which amounted in effect to a revolution of the conditions under which the working-class population of this country had received medical treatment, a period of 21 years is not, relatively, a very long time. But it is a reasonably adequate period over which to pass in sober review the operation of so far-reaching a national measure of reform. We do not venture to anticipate what Mr. Lloyd George may say of his child now grown to manhood, without, it may be added, the advantages, or possibly the disadvantages, of too close a parental supervision. But we may expect that, even in an after-luncheon speech, he may moderate his transports of the year 1911. In the closing days of that year, when the first National Health Insurance Commission entered upon its duties at certain hotel premises in Buckingham Gate, Mr. Punch reminded us that the hotel was henceforth under entirely new management, and that special features would be an abundance of "rare and refreshing fruit," 9*d.* of value for every 4*d.* spent, the hotel bus meeting all trains, and the proprietor meeting all objections.

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[1] The Lancet, 1932, i., 1110.

[2] Ibid., 1933, i., 44.

Now although the National Health Insurance Act in operation has failed to realise many of the picturesque expectations of its founder, it has stood the test of experience surprisingly well. Apart from the fundamental change of transferring to the local health authorities the tuberculosis provisions of the Act (which figured so largely in its early stages) there have been no important changes in essentials during the period of 21 years. On matters of detail, the provisions of the scheme have been necessarily varied from time to time; in one notable instance—the right of the insured person to change his doctor—the variations have been a little bewildering and, at the present time, there is a revival of the demand that the insured person should be able to change his doctor as often as he pleases and at any moment. The principal objection to this is understood to be the rather exaggerated fear that the doctor who writes certificates of incapacity too freely may attract the largest number of patients. The certificate of incapacity is the connecting link between the medical benefit provisions of the Act and those dealing with the principal cash benefits. Every certificate given by a doctor is virtually a cheque on the National Health Insurance Fund. That is one of the reasons why the position of the medical practitioner under the National Health Insurance scheme is by far the most important factor. The primary reason, however, is that it is of the first importance that the employed population of this country, numbering some 15,000,000, should be able to receive, immediately the need arises, medical treatment as a matter of contract and of right. Under the conditions prevailing prior to 1911, a section of the working-class population received medical treatment under the unsatisfactory conditions of the old club practice. A larger section received it either as paupers or not at all. If we pass in review what has been attained—largely as the result of the firm stand taken by the medical profession when the revolution was upon them—we must fairly recognise that, while the employed population have secured medical treatment immediately available under conditions which have for them all the advantages of private practice and something more, the medical practitioner for his part has secured in this branch of his work freedom from financial anxiety and, notwithstanding much in the way of regulation, the preservation of his clinical judgment unfettered, and of the intimate relations which exist between doctor and patient for the most part undisturbed.

In a recent answer to a parliamentary question, the Minister of Health gave figures showing that, from the date of the inception of the National Health Insurance scheme to Dec. 31st, 1932, a total amount of £415,000,000 had been expended on benefits under the scheme. It is a staggering sum and it is difficult for the ordinary person who does not think in millions to understand quite what it means, still less to determine whether so vast an expenditure has been justified in its results. We reflect that the medical service has suffered from the outset through the absence of laboratory facilities, while centres for the organisation of team-work have been lacking, and there has been no provision for consultations, second opinions, and specialist services. The members of the medical profession engaged in the health insurance service have themselves pressed for these from time to time, and the cost relatively to the large sums otherwise involved must be inconsiderable. At least we may express the hope that where so vast a sum has been expended—and other hundreds of millions carried to reserves for meeting future benefits—the question of providing those aids to a general practitioner service which have for so long been absent from the national scheme shall be again considered at an early date.

A PROJECTED ADVANCE IN VETERINARY EDUCATION

MAN'S beasts have always headed the list of his possessions, and agriculture is the oldest of his activities. His own health is conditioned in large part by that of his live-stock. Yet the essential interlocking of human and veterinary medicine has not always been obvious to the leaders of either profession, perhaps because it tends to be obscured when emphasis is laid on the clinical aspects of disease. Among the many services that the late Sir CLIFFORD ALLBUTT rendered to medical science, his consistent and successful advocacy of a closer liaison between the medical and veterinary professions and his insistence that pathology should be treated as a comparative science deserve a prominent place. It is therefore peculiarly fitting that a projected advance in veterinary education, designed to tighten the connecting links already forged, should proceed from the university in which he held for so long the Regius Chair of Physic.

The *Cambridge University Reporter* for May 16th contains the report of a syndicate appointed to consider the organisation of certain research institutes in the University and their relation to the University and its departments. The institutes referred to are those that are attached to the Faculty of Agriculture, and among them is the Institute of Animal Pathology, the director of which already holds a university chair. It is in their review of the work of this Institute that the syndicate have put forward the tentative proposals with which we are immediately concerned. The problem of teaching, they state, has not been an easy one to solve. They are convinced, however, that it is of the greatest importance, both for the success of the Institute itself and in order to increase the flow of recruits well trained in pure science into the veterinary profession, that more should be done in the future than has proved possible in the past. They therefore propose the establishment of a Diploma in Veterinary Science. They suggest that a candidate for this Diploma should pass the First M.B. examination which would, they understand, exempt him from the first examination for the M.R.C.V.S., and that he should then take at Cambridge certain courses, more particularly in physiology and pathology, which would supply a scientific training and background for his later work in veterinary science, and would incidentally qualify him for the B.A. degree. They contemplate that after this preliminary training the candidate would proceed to a veterinary college and secure his M.R.C.V.S., and that he would finally return to Cambridge for a relatively short course in animal pathology.

The analogy between the course of study proposed and that pursued by those medical students who after completing their preclinical years at Oxford or Cambridge proceed to one of the great London teaching hospitals for their clinical studies is sufficiently obvious. The close association that would ensue between medical and veterinary students during their preclinical years would be to the advantage of both, and would lay the foundation of an intimacy that should render natural and easy their coöperation in later years. That this coöperation will hasten the advance of knowledge, and hence our eventual mastery of disease, there can be no reasonable doubt. Its benefits would probably be most immediately apparent in the field covered by bacteriology, parasitology, and preventive medicine. It is not only that many animal infections are communicable to man or that, in some cases, animals form the main reservoir of infection from which man is constantly at risk. The conditions of veterinary research, and especially the possibility of studying, under adequate control, an infection as it occurs in the natural host, offer advantages that are denied to those who must test their theories by the study of infections as they occur in man. The particular instance of the virus diseases will suggest itself at once to those who have followed the developments of recent years. In the study of dog distemper and of foot-and-mouth disease, medical and veterinary research workers have coöperated with the happiest results. The final conquest of virus infections in man including perhaps the major scourge of influenza will, when it comes, quite certainly owe much to knowledge gained from veterinary sources. The veterinarian cannot advance without free use of the knowledge and technique developed by his medical colleagues. Anything that will tend to increase the freedom and frequency of intellectual intercourse should clearly be welcomed on both sides of an unnatural frontier that should never have existed.

UNEMPLOYMENT AND THE CHILD

THE Minister of Health was able to tell the House of Commons last Friday that in this country there is so far no evidence of any general increase of physical impairment, sickness, or mortality as a result of the economic depression. The public medical services, he said, have proved of inestimable value in these bad times, and he mentioned that last year some 48,000,000 school meals were served by local educational authorities, while 1,000,000 children received supplementary milk. For this statement we may well be thankful; it is clear that much has been done to prevent children from being visited with the misfortunes of their fathers. But Sir HILTON YOUNG would be the first to admit that complacency would be inappropriate in the medical profession while any children suffer from starvation in any degree. Nothing stands out more clearly from the medical teaching of the past decade than the importance of adequate nutrition from the time of conception onwards, and if this teaching has any meaning at all it means that the satisfactory feeding of children should be a first charge on the community.

Is there then any reason to suppose that children are not being properly fed? The views of a sample group of medical officers of health are summarised on p. 152, and reflect the general uncertainty. The problem can be approached in two ways. First it may be asked, is there much malnutrition? The answer is that height and weight measurements reveal on the whole little or no deterioration between 1930 and 1932. Secondly the investigator may inquire what food a householder can buy with the money available. And here it is that the gravest doubts arise; for there is definite evidence that a large proportion of the people of this country are not receiving enough money to purchase the minimum subsistence diets which have been outlined by various authorities.[1] In Sheffield, for instance, where the median rent of a group of working-class houses proved to be 9*s.*, the minimum needs standard has proved to be rather higher than unemployment benefit even in the case of small families.[2] Unemployment benefit is sometimes, it is true, supplemented by the public assistance committee, whose relief scale, in Sheffield, is slightly higher; but many poor people still feel that there is a stigma attached to application for public assistance. This is a point brought out in a report entitled Unemployment and the Child [3] just issued by a committee of the Save the Children Fund, which urges that the stigma should be removed so far as possible by the Bill which the Government is likely to introduce in the autumn. The Committee quotes Sir GEORGE NEWMAN'S statement that the proportion of under-nourished children in the schools rose from 9·5 per 1000 in 1925 to 11·2 in 1931, and goes on to say that while the amount of actual deterioration has not so far been great there are an increasing number of cases where there is a serious risk of malnutrition.

In particular families the three factors which may produce suffering among children are (*a*) a rent above 5*s.*, which, it is generally considered, can be paid from unemployment benefit; (*b*) a large number of children; and (*c*) children whose ages involve the need for food approximating to the adult scale. Of these factors the one which most often brings unemployed families into the danger zone is high rent, and the Committee proposes that, when the Government takes over full responsibility for unemployment, supplementary grants should be made wherever a reasonable rent is causing hardship. An underlying principle should be that supplements of this kind should not make the family better off when unemployed than when at work, and here attention is drawn to the advantage of grants in kind. This applies especially to the second source of danger —large families. In this connexion the Committee attaches great importance to school meals, not only for their actual value to the individual child but also as providing almost the only means by which differentiation can be made between the needs of different types of households. At present, it believes, there are many schools where the children really require extra nourishment, but do not get it because the arrangements are either inadequate or non-existent. Unless there is constant inquiry by the school medical service "there will always be local authorities who will take too low a view of the amount of provision they should make for school meals and milk"; and the Committee hopes that in the new Bill the cost of such meals, in so far as need for them is due to unemployment, will be treated as part of the cost of unemployment which should be borne by the State and not by the local authorities. Approval is also expressed for milk distribution schemes like the one adopted under Dr. A. C. F. TURNER at Rotherham, where malnutrition has been rapidly diminishing under a generous policy. This approval will be general, for it is a painful anomaly that farmers still cannot find a market for their milk although there are schools where children do not receive it regularly.

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[1] See, for example, THE LANCET, 1933, i., 597.

[2] A Survey of the Standard of Living in Sheffield. By A. D. K. Owen, M.Com. Sheffield Social Survey Committee Survey Pamphlet, No. 9. June, 1933. 1*s.*

[3] Unemployment and the Child. London: Longmans, Green and Co. 1933. Pp. 137. 2*s.* 6*d.*

ANNOTATIONS

BRITISH EMPIRE CANCER CAMPAIGN

THE tenth annual report of the British Empire Cancer Campaign, which is edited by Mr. J. P. Lockhart-Mummery, contains reports from the different cancer research centres and individual workers receiving grants from the Campaign, with a brief introductory summary which appears over the name of Lord Reading. The most important advance is that recorded in Prof. E. L. Kennaway's report on synthetic carcinogenic compounds and on the chemical nature of the cancer-producing compound in coal-tar. This work was recently described by Mr. J. W. Cook, D.Sc., in the special discussion on cancer at the Royal Society.[1] The same applies to the experimental production of fowl sarcomata by the injection of coal-tar and synthetic compounds. This was first reported by Dr. P. R. Peacock working at the Glasgow Royal Cancer Hospital and has been confirmed by Prof. J. McIntosh of the Middlesex Hospital. While the numerous fowl tumours obtained by Dr. Peacock have so far not been found to be transmissible by cell-free filtrates, Prof. McIntosh has succeeded in obtaining at least one filtrable tumour produced by tar. Of other work at the Middlesex Hospital we may mention that of Prof. E. C. Dodds, who has investigated the increased excretion of prolan in the urine of patients suffering from malignant disease of the genital tract. No such increase was found in cases of cancer of other parts of the body. Occasionally an increased excretion of prolan was found even in the complete absence of malignant disease. Mr. F. Dickens, D.Sc., has continued the study of the carbohydrate metabolism of normal and cancer cells. From Leeds Prof. R. D. Passey reports amongst other results that it has been possible to breed a strain of mice possessing an increased susceptibility to tar cancer. Dr. T. H. Lumsden has now begun to treat inoperable cases of human cancer by the injection of the euglobulin fraction of immune sera obtained in sheep by repeated injections of the Jensen rat sarcoma. The serum is injected into the tumour, or into the artery going to the tumour.

A great portion of the report is taken up with an account of the clinical results of radiotherapy in different centres which do not present any special features. There is, however, one line of investigation which calls for special comment, especially as the results are referred to in the introduction as being "rather startling." We read there (p. 18)—

> "It has always been stated that the rays of radium and X rays are liable to cause blood changes, such as anæmia, in patients who are being treated by intensive radiation and also in those persons who are handling the apparatus, if great care is not taken to protect them from the effects of the rays upon the blood corpuscles and other constituents of the blood. Recently doubt has been cast upon this view and a very thorough investigation into the variations which occur in the blood counts of X ray and radium workers, patients undergoing treatment, and normal subjects has been carried out by two of the research centres during the year. The results from both agree in substance. It was found that very great variations in the blood count normally occur, not only between different normal individuals, but even in the same individual at different times of the day. The blood counts of normal individuals who had not been exposed to the rays were checked against those who had been subjected to massive doses of radiation. It was found to be impossible to establish any normal standard, and variations in the leucocyte count could not be safely accepted as evidence of damage by rays. . . . The results of the investigations suggest that there are no characteristic changes produced in the blood picture by large doses of radiation. These rather startling conclusions will no doubt call for further investigation on this subject, and should have an important bearing up on radium treatment generally."

The conclusions are indeed startling in view of the extensive observations of Dr. J. Lavedan and of Dr. J. C. Mottram at the Radium Institutes of Paris and London respectively. Their observations seemed to place the sensitivity of the blood-forming organs to radium beyond the possibility of doubt. These workers by no means neglected the factor of individual variations in blood counts and their work has led to the adoption of protective methods which have prevented the serious accidents observed in the early years of radium therapy. The comment quoted above is evidently based on certain observations made under the auspices of the Campaign by Dr. R. H. Simpson, late pathologist to the deep X ray department at St. Bartholomew's Hospital and by Dr. G. White Phillips, working at the Westminster Hospital; it takes no account of the opposite results, more in accordance with previous experience, reported to the Campaign from a third research centre (Manchester and District Radium Institute). Nearly three years ago Sir Humphry

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[1] See THE LANCET, June 24th, 1933, p. 1344.

Rolleston drew attention [2] to the conflicting observations on blood changes following irradiation, and the questionnaire issued by the X ray and Protection Committee in June, 1932, was designed to clear up the position. The response, which was due in October last has, we believed, provided but meagre information, but it may be hoped that this will soon be made available. Meanwhile it would be highly regrettable if any protective measures were neglected as a result of publicity given to what appears at present to be inadequate evidence that radium and X rays have no harmful effect on the blood-forming organs.

THE BUCKSTON BROWNE SURGICAL RESEARCH FARM

At the opening of the Buckston Browne Surgical Research Farm at Downe on Wednesday, Sir Holburt Waring, P.R.C.S., delivered a short address in which he laid before his audience a short and frank summary of the present position of surgery. He described the main activities of the College as threefold: to impose examinational tests, to house the Hunterian Museum, and to advance the science and art of surgery, adding that the last responsibility had been placed on the College by trusts, legacies, and gifts under which the provision of accommodation, material, plant, and personnel for experimentation and research became necessary. The history of the Hunterian Museum is a familiar one. It was placed in the charge of the College after its purchase by the State in 1799, and forms the nucleus of the present magnificent collection. Hunter himself conducted the biological experiments associated with the collection in a farm at Earl's Court, a completely rural district at the time, and while the College could house, and has faithfully housed, the specimens and made splendid additions to them, the College buildings have not the necessary accommodation, either in Lincoln's Inn Fields or elsewhere, to follow the great experimenter's example in research work. The situation has long been recognised, and laboratories were started in the Examination Hall, on the Thames Embankment, about 40 years ago. This side of the work of the College lapsed with the change of site of the examination centre. In 1930 Lord Moynihan, then P.R.C.S., voiced the sentiments of certain of his distinguished predecessors and added force to them, by urging that the College should again associate itself directly with surgical research. Accordingly the upper floors of the College building were fitted up and equipped for surgical and biological investigations at considerable cost, but it was soon seen that the accommodation was inadequate for the kind of work that was projected. At this time Sir Buckston Browne came forward and offered to provide, at a total cost of £100,000, a surgical research farm, including a residential hostel, which should follow the ideals of John Hunter and be available for surgical and biological workers. "What a magnificent donation," said Sir Holburt Waring, "in the interests of the advancement of surgery by one of our own profession," as he went on to show that radiological methods and biochemical and biophysical processes are now playing such an increasing rôle in the diagnosis and treatment of disease that the solution of fundamental problems by experimental methods has become the routine of progress. In outlining some of the more pressing surgical and biological investigations which would be carried on at the new centre, he said that recent statistics on the mortality of intestinal obstruction showed about 40 per cent. of patients to die, despite the perfection which surgical technique has apparently reached; that gastric and duodenal ulcers were becoming more common and there was as yet no satisfactory explanation as to their cause or their pathological development; and that the cranial and thoracic cavities, though now in the fields of successful operative intervention, provided many surgical problems. These things he put forward as examples of the conditions for which experimental work should provide explanations. Apart from them the laboratories would afford facilities for those who were undertaking investigation of a purely scientific nature, e.g., into growth phenomena—normal and abnormal—the inter-relationship of certain endocrine glands, and many aspects of neurology. Declaring the Research Farm open, he concluded: "In the association of the surgeon with the biologist we look for the advances of surgery in the future: in dedicating the Farm to the ideals of John Hunter we offer a worthy tribute to his memory; and we wish the workers who make use of its facilities every success in their tasks."

THE PHARMACY AND POISONS ACT

Although the Pharmacy and Poisons Act received the Royal assent at the end of June, its effect will be gradual. It is one of those measures with suspended operation, whereof different parts can be brought into force at different times by the press-the-button procedure of Orders in Council. Section 16, which creates the advisory committee known as the Poisons Board, is likely to receive effect forthwith. The Board will then have to sit down to the prolonged and important work of preparing the Poisons List to be submitted to the Home Secretary for confirmation. This may well mean that the bulk of Part II. of the Act cannot operate before next year. The main provisions of the statute have already been summarised in The Lancet when the proposals were in the Bill stage. The domestic reorganisation of the Pharmaceutical Society, the new Poisons List in its two parts, the increased supervision of the sale of poisons, and the more orderly statement of the legal position are advantages which will be increasingly appreciated as time goes by. As usual with modern legislation, much of the new law which most concerns the public—the manufacture, sale, and supply of poisonous substances, the storage, transport, and labelling, the compounding and dispensing, the containers, the ingredients to be added in order to distinguish poisons readily, and so on—are left to be dealt with by the convenient and elastic method of departmental rules instead of being finally settled by the direct decision of Parliament. We hope to draw attention to the salient features of these rules when they at length appear.

ERYTHEMA NODOSUM AND THE EXPECTATION OF LIFE

The many recent studies on the relationship of erythema nodosum to tuberculosis have given a new significance to the former disease in connexion with life assurance. Thus it is becoming more and more desirable to express in figures the shortening, if any, of the expectation of life of persons who have recently had erythema nodosum, and information on this point is to be found in a paper by Dr. H. J. Ustvedt and Dr. A. S. Johannessen in *Norsk Magasin for Laegevidenskaben* for May. Their material consists of 314 patients treated for erythema nodosum in the Ullevaal Hospital in Oslo between Jan. 1st, 1916,

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[2] Quart. Jour. Med., 1930–31, xxiv., 101.

PAINFUL FEET

(MR. S. L. HIGGS)

OF all minor maladies a painful foot is one of the most disabling and depressing. The public is not, as a rule, well advised on this subject. In the past teaching in the medical schools on "foot troubles" has been very deficient and many doctors feel that it is rather outside their province. Other advice is therefore sought. The chiropodist, however skilled, can afford but temporary relief. He treats the corn but not the cause of it. The special shops devoted to foot comfort appliances frequently fail to give relief, judging from the number of patients who come to hospital seeking further advice although laden with their wares. If the bonesetter is consulted he usually discovers some "bones out of place" which he "puts back" by manipulation. Manipulation may be the right treatment if the pain is due to adhesions but, since accurate diagnosis and after-treatment are lacking, most patients are no better although they remain convinced that something beneficial has been done.

The normal foot has strength and flexibility. It must be emphasised that the muscles and not the ligaments form the natural support of the arches. If the muscles fail the weight falls on the ligaments which become stretched and painful. Adhesions and stiffness develop and the flexibility disappears. There is no merit in a high arch unless it is supple and under muscle control. In childhood pain in the foot is a serious symptom, since a child under 10 years old practically never suffers from foot strain and the pain may be due to tuberculosis of the tarsal bones or to some unusual condition such as Köhler's disease. An X ray examination is therefore essential.

DISORDERS OF THE LONGITUDINAL ARCH

Disorders of the longitudinal arch, a common cause of painful feet, can be divided into three groups. The first, occurring in adolescence, is due to *overstrain of apparently satisfactory arches.* A typical case is that of the boy who has just left school and become a messenger. He is on his feet far too much and after a time acute pain develops. The foot becomes stiff, everted into the valgus position, and there is spasm of the peroneal muscles. Rest is an essential in treatment. The boy must stop work. Manipulation of the feet is carried out under an anæsthetic followed by a period of rest in plaster. During this time the boots are wedged on the inner sides and fitted with outside irons and ankle-straps. Removal of the plaster is followed by physical treatment and a gradual return to activity. A focus of infection must be sought as the condition may be complicated by arthritis of the tarsal joints.

In the second group is the *common foot strain* which occurs among adults. There are two types: (1) an acute condition, in which there is marked œdema and the spring ligaments are painful; and (2) a chronic condition. Treatment for acute foot strain is by rest, support, gentle massage, and re-education in walking. In such a case a rigid metal support is very harmful. If any "support" is necessary one made from a plaster cast of the foot is best and its chief function is to deflect weight to the outer side. It is made of cork and leather, is light, and fits snugly under the sole of the foot. In addition, wedges are fitted to the heels of the shoes. In the chronic condition the symptoms are an aching pain in the feet and cramp up the calves of the legs. Flexibility of the foot has been lost, movement is restricted, and attempts at flattening the arch hurt. Treatment is by manipulation under gas. The foot is put through the full range of plantar flexion, dorsiflexion, and inversion. Adhesions are broken down and the painful ligaments stretched. In many cases the pain disappears immediately mobility is restored. Instruction in exercises and correct methods of walking and standing are then given and the shoes are altered if necessary.

The third group includes the thorough-going *broken-down flat-foot,* in which the arch touches the ground throughout its length. Such a foot is not in itself painful but the onset of rheumatism or arthritis causes symptoms. Any attempt to restore the arches is useless, but the foot can be made more comfortable by suitable shoes.

DISORDERS OF THE TRANSVERSE ARCH

Transverse arch troubles are more common in women than in men. The complaint may be of a bruised feeling, like walking on pebbles, under the balls of the feet, or of a severe acute pain which occurs suddenly when walking and is due to nerve pressure. Short stockings which constrict the toes and shoes of a bad shape with too high heels are the chief factors which cause this troublesome condition. Treatment is by a support, made from a plaster cast, to take weight off the painful joints. If the toes are clawed and stiff, manipulation under gas followed by re-education of the intrinsic muscles and faradic foot baths will also be required. As a temporary measure strapping the fore part of the foot or a metatarsal bar gives relief.

DISORDERS OF THE TOES AND HEEL

Hallux valgus is a common trouble among women. It is often associated with a flat transverse arch and is due to similar causes. The site of pain varies. It may be in an inflamed bursa overlying the prominent joint, in the big toe-joint itself, or in the other metatarso-phalangeal joints which are taking too much weight. In selected cases operative treatment gives excellent results. The modern method is to resect about two-thirds of the metatarsal head, preserving the bearing surface for the sesamoid bones. The bone is made absolutely smooth with a file and nothing is interposed between the joint surfaces. Careful after-treatment by massage and exercises is essential. An operation for removal of the bursæ and exostoses only is unsatisfactory as the valgus deformity is not corrected and the trouble will recur.

Another painful condition is a stiff big toe-joint—*hallux rigidus.* It often occurs in adolescence and trauma is a factor in producing it. It may follow a sudden injury, such as a stubbed toe, or be due to chronic strain through wearing short shoes and stockings. Usually an infective focus, such as septic tonsils, is also present. A traumatic arthritis is thereby set up. In the early stages rest and alteration to the shoe to support the inflamed joint are indicated. In the later stages, where typical osteo-arthritic changes have occurred and the joint is very painful, good results may be expected from operative treatment. Removal of the metatarsal head may be disappointing through the development of arthritis in the new joint. A safer plan is to remove the exostoses from the head of the metatarsal and excise the proximal half of the first phalanx.

A *hammer toe* gives rise to pain because of shoe pressure on the painful joint. Pain may also develop under the ball of the foot due to downward pressure of the corresponding metatarsal head. The deformity occurs because the toe is over long and is pressed into line with the others by the sock or stocking.

Once it is developed, the only treatment is operative. The toe should not be amputated. The usual operation of excision of the flexed interphalangeal joint may lead to a painful fibrous ankylosis. A better plan is to spike one bone into the other. This is done by cutting the proximal phalanx into a point and fixing this into a hole bored in the base of the second. Firm internal splinting is secured and the patient can walk without pain in a few days.

A *painful heel* is a common complaint, especially in middle age. There is often a history of lumbago or sciatica. It is due to plantar fibrositis and the tender spot is at the attachment of the plantar fascia to the os calcis. A spur may be present, but since this is secondary and is not the cause of the symptoms it rarely requires removal. Dental sepsis is often responsible and should be treated. A soft sponge rubber heel pad should be fitted inside the shoe. Soda foot baths or diathermy will usually help to relieve pain.

SPECIAL ARTICLES

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

THE annual meeting of this association took place on July 5th, 6th, and 7th, at Colchester and Clacton-on-Sea, under the presidency of Dr. F. DOUGLAS TURNER. The meetings at Colchester were held at the Albert Hall and at the Royal Institution for Mental Defectives, while a visit also took place to the Severalls Mental Hospital, at the invitation of Dr. R. C. Turnbull.

The Gaskell prize and gold medal were awarded to Dr. Desmond Curran, and the special merit of Dr. L. Minsky's essay was recognised by a gold medal. The bronze medal was awarded to Dr. D. N. Parfitt, and the prize dissertation was that of Dr. J. S. Sharp.

The PRESIDENT gave an address on

Mental Deficiency

He said that to France belonged the honour of first attempting to do something for the mentally defective. Seguin founded in Paris the first school for educating idiots in 1837, with the primary object of overcoming muscular incapacities, and this formed the basic principle of the training in occupation centres to-day. The first need was to awaken the senses, educate the larger muscles of the body, and infuse vitality. The teaching to read and write as a preliminary step had been abandoned. Dr. Turner dealt at length with the history of the movement in this country. Though the institution over which he presided had now an endowment fund of £50,000, and 400 acres of land, not a single bed nor a portion of a building had been provided by any local or statutory authority; this work was the result of charitable funds. An extension had now been planned for the accommodation of a further 444 patients. It was not until 1914 that, under the Mental Deficiency Act, the term "feeble-minded" was legalised to cover the highest grades of defect. Only after long years of experience and care did early workers conclude that though great improvement was possible in these defectives, for large numbers of them life-long care of some kind was a necessity. The institution of intelligence tests gave the impression that mental deficiency was much more widespread than was actually the case, and the feeling of alarm was increased by emphasis on eugenics and heredity studies. Less than ten years ago a well-known society which was established to improve the race stated in a pamphlet: "If all mental defectives could be prevented from having children the number of defectives in the country would be halved in about three generations." To those with daily experience with defectives that was a statement which had no warrant in present knowledge. Dr. Turner's view was that there had been no great increase in the number of defectives, but there might have been a slight increase partly due to a lowered infant mortality and partly to the greater longevity of defectives; but he did not consider that, on the average, defectives were more prolific than were normal people of the same social standing, or that the children of such people were necessarily, or even often, defective. Popular opinion was that deficiency was a single entity or disease, whereas it was a dozen or more separate things with different causes, and therefore different remedies.

THE EFFECT OF ENVIRONMENT

Dr. Turner had been greatly struck by the great effect of environment on the production of certified defectives. The legal definitions of a defective were social in character; they did not depend on mental age or specific tests, nor on educational capacity, but on the social capacity to live in the world to which they belonged. It was a truism to say that civilisation produced defectives by making living conditions more difficult; thus a person regarded as defective in a large city would pass muster as normal in an agricultural area. Many of these people adjudged defective were free from disease or discoverable abnormality; they were merely somewhat short of a high standard, and this did not justify their being classed as diseased. The great hope for the future in this domain lay in attacking the environment. More than 10 per cent. of the patients on the books were out on licence. But all new patients must be at the central institution for a time, especially for skilled examination and care. These institutions should always be centres of research, also training schools, but he did not think the medical superintendent should act as adviser to the local authority. The institution should turn its back on the alarmist views prevailing in some quarters, return to the wider outlook of our forefathers, and concentrate on stabilising the defective and leading him back to the world from which he came.

Among the papers contributed and discussed was one by Dr. R. M. STEWART (Leavesden Mental Hospital) on

Juvenile Types of General Paralysis

He said that the mental symptoms in this condition were imposed on a mind which had shown an imperfect development from the earliest years of life. Since Clouston's original description in 1877, 600 cases had been recorded. Often the symptoms were quite unlike those seen in the adult form. Owing to the increasing tendency of general and neurological hospitals to undertake treatment of all forms of neurosyphilis, figures concerning the disease were apt to be misleading. In a recent survey of 50 cases of congenital neurosyphilis attending the National Hospital in the last ten years, 32 per cent. were found to be examples of juvenile general paralysis, and

12 per cent. of juvenile tabo-paresis. About 1 per cent. of all cases of congenital syphilis developed general paralysis. The development of symptoms being so insidious, it was impossible to fix the date of onset; moreover, if there were early focal signs it might seem to be a case of involvement of the covering and supporting tissues of the brain rather than of the parenchymatous elements. In this juvenile form the sexes suffered about equally, and it was not uncommon for the disease to last ten years or even longer. The early appearance of epileptic convulsions must be regarded as an unfavourable sign. These patients did not commonly show the syphilitic facies. Endocrine disturbance with infantile sexual development was common, and puny physical development was usual. In a general way the neurological signs resembled those of the adult paretic. Foremost among the motor signs were pupillary changes, including optic atrophy, though the Argyll Robertson pupil was less common in the juvenile than in the adult type. One of the earliest motor signs was ataxia and a clumsy gait.

As to mental symptoms, a progressive and profound dementia removed what little intelligence might have existed. Among predisposing causes was trauma to the head following a fall. The incidence of neurosyphilis in an unselected group of syphilitics was 25 to 35 per cent.; therefore the fact of a juvenile general paralytic having a paretic father or mother might be no more than coincidence. In many congenital syphilitics the cerebro-spinal fluid was serologically and cytologically normal soon after birth but this did not preclude the presence of spirochætes in the fluid. It remained for future research to determine whether these cases were foredoomed to develop general paralysis after the lapse of some years. Dr. Stewart had often searched for nests of spirochætes in the vesical organs of congenital syphilitics—i.e., those dying in adolescence—and of general paralytics, but had never found them.

With regard to pathology, certain features were characteristic of the juvenile type, the chief being a smallness of the cerebral hemispheres, and, of next importance, an atrophy of the folia of the cerebellum, with a gliosis far beyond anything seen in any other parts of the nervous system. There was also a great reduction of the molecular and granular layers, and a disappearance of the Purkinjé cells. The other organs of the body might show changes of a syphilitic character; the liver might present some degree of chronic interstitial hepatitis, while chronic inflammatory changes were common in the pancreas and the ductless glands, and in the larger arteries there might be evidence of atheroma.

Little of a hopeful nature could be said about treatment. The most which could be hoped for was some prolongation of life. Dr. D. Nabarro, however, had treated a girl, 6 years of age, by inducing malaria and by intracisternal injections of salvarsanised serum, and the improvement was so pronounced that it was hoped she would prove educable and would grow up to healthy womanhood. But where feebleness of mind existed from birth, the neuronic development would have been checked in early life, and antisyphilitic measures would reach their objective too late.

Prof. LANCELOT HOGBEN read a paper entitled

The Interaction of Heredity and Environment

Speaking as a biologist, he remarked that in the world of science it was generally found that virile opinions were those which were fortified with a rather effeminate equipment of evidence. One of the subjects of which this was true was mental inheritance. In early days it was simple and attractive to place the blame on heredity. It was now becoming apparent that preventive policies based on genetic principles divorced from exact scientific knowledge of human inheritance were no more likely to succeed than curative efforts unfortified by a scientific understanding of the environment. From the biological standpoint it was not a problem of genetics alone; it demanded all that the geneticist could contribute to the recognition of how the characteristics of an organism were influenced by those of its ancestors; it called for all that the nerve physiologist could impart as to how the characteristics of an organism were influenced by the changing pattern of stimuli to which it was subject. The advance of science depended as much on learning the technique of asking questions in the right way as upon inventing devices for solving them. It has taken a long time to outgrow the confusion between legal inheritance and biological inheritance; it was still believed that people hand on their noses in the same way as they hand on their bank balances. It was now possible to define what was meant by differences due to genes and differences due to environment. Seeing that behaviour had its material basis in the structure of the nervous system, it would be surprising if it were not found that genetic differences played some part in determining individual differences of social behaviour. This was shown in the work of Dr. Lionel Penrose (Colchester) on the interaction of heredity and environment, with special reference to Mongolian idiocy. That work indicated that a fuller understanding of the genetic aspect of mental diseases did not always lead to the conclusion that selection was the most effective way of eliminating them. The effectiveness of selection depended on the kind of transmission involved, and more knowledge of the part played by the uterine environment in determining mental defect could help in unravelling the way in which gene differences associated with mental defect were transmitted.

Dr. A. G. DUNCAN (Severalls Mental Hospital, Colchester) read a paper on

Cholesterol: its Relation to Mental Disorder

referring to work which had been carried out at his hospital since 1926. Cholesterol, he said, was a constituent of all animal cells in free and combined forms; similar sterols were present in all vegetable cells. In the blood it was distributed about equally between the erythrocytes and the plasma. Most of the researches in cholesterol in relation to mental disorders was carried out by observing changes in the blood-cholesterol. Not much work had been done on this, and the conclusions drawn from it were very inconstant, partly because of the small number of the cases studied. It was necessary when reporting results to state the mental condition of the patient in exact terms. Dr. Duncan had found that the serum-cholesterol was high in cases of dementia præcox showing emotional indifference, and—within normal limits—in those characterised by confusion or emotional excess. When a dull patient became agitated his serum-cholesterol was much lower. In mood psychoses, also, the cholesterol content was high during remissions, falling with a relapse into the manic or melancholic state. Chronic alcoholism showed similar changes. In 1928, while treating with thyroid extract a patient with dementia præcox whose appearance suggested sub-thyroidism, Dr. Duncan had recorded a fall in serum-cholesterol of from 502 mg. to 158 mg. per 100 c.cm., and coincidently there was a great improvement in the mental state. When the treatment was suspended, the cholesterol rose to 414 mg. and apathy returned. The research showed that lecithin and cholesterol were in some respects antagonistic. It seemed that the greater the amount of cholesterol present, especially in proportion to lecithin, the lower was the metabolic activity of the cells. Among the conclusions drawn were the following: blood-cholesterol was lowered in cases of heightened emotion and quickened psychomotor activity; it was raised in apathy and diminished psychomotor activity; when the cholesterol in the blood and tissues was lowered an increase in the metabolic rate was to be expected and a therapeutic raising of the blood-cholesterol acted, in some cases, as a sedative on the nervous system. But there were many agents by which the rate of activity of the nerve-cell might be influenced. The research might throw light on a very obscure corner of physiology.

Dr. Edgar A. Doll (Vineland, New Jersey, U.S.A.) read a paper entitled

Community Control of Mental Deficiency in U.S.A.

His thesis dealt in a detailed manner with the subject. It was concluded, he said, that 1 per cent. of the total population of the States were mentally deficient, and 2 per cent. at least of the school population could be so classed. Nearly every State had at least one institution for them. In 1928, 65,000 mentally deficient people were under care, so that only 6 per cent. were cared for in institutions. The cost was about £100 per annum per head. Many patients were being successfully placed on parole, which made care of a larger number possible. In the educational aspect, 2552 special classes had been formed; few schools tried to do anything for the really low grade. Clearly the majority of mentally deficient persons resided among the community, so that this constituted the most serious aspect. The visiting teacher was an important aid, but there was little in the States in the way of occupation centres. Community supervision in rural districts presented a very difficult problem because of the distance to be covered in relation to the small number to be served. Apparently the States population were more optimistic as to the possible good from sterilisation than in England. In the States selective sterilisation was favoured, and a temporary commitment to an institution for this purpose. Great stress was laid in U.S.A. on the need of research.

Demonstrations and Social Functions

During the meeting a demonstration took place at the Royal Institute for Mental Defectives at Colchester, where training is being carried on under a special grading system to suit the particular classes of inmates. The workshops and recreation arrangements testify to the success of the organisation. Lord Stradbroke, the chairman of the institution, spoke of the enthusiasm of the work in progress when presiding at a luncheon to the members of the association held in the Moot Hall, Colchester.

The Annual Dinner

Dr. Turner presided over a distinguished company at the Grand Hotel, Clacton, on Wednesday. Sir Robert Armstrong-Jones, in proposing the Health Services, pleaded with the Minister of Health to secure recognition of the Association's certificate for nurses, and to see that research at mental hospitals should be recognised in State grants. But Sir Hilton Young refused a decision, remarking that the post-prandial state was characterised not only by receptivity but also by delayed reactions. He thought that the Association could be a real safeguard against bifurcation into branches devoted to mental deficiency and mental disorder, and in emphasising the unity of medicine he expressed regret that teaching hospitals have made little use of their right to take in mental cases. Until they did so they could not be regarded as general hospitals. Mr. P. J. Pybus, M.P., amusingly proposed the toast of Law and Medicine, drawing replies from Sir Leslie Scott, who laid stress on the sanctity of the law, and Sir Henry Brackenbury, who said that he was more and more impressed by the overwhelming importance of psychological medicine. The toast of the Guests, proposed by Dr. W. Masefield, was answered by Mr. Oswald Lewis, M.P., and by Lord Dunwich, who spoke of the regrettable insularity of professions. The hour being now past midnight, Sir Francis Fremantle, M.P., proposed the concluding toast of the President. In the treatment of mental cases, he said, it had all along been necessary to face the combination of demands by the community for safeguards against the individual, and the demands of the individual for the safeguarding of his or her own natural rights. It was here that the Association had so distinguished itself, recognising as it did the dual responsibility. Its duty remained to show that mankind manifested every shade of variation, whether from insanity, inheritance, or otherwise.

MEDICINE AND THE LAW

Walton *v.* Lief and Natural Healing Ltd.

The system of trial by jury may be the least unsatisfactory method of disposing of cases about medical treatment, but the requisite unanimity of 12 jurors is notoriously not attained without compromise. The resultant verdict may represent a view which no single juror holds.

Mrs. Walton's recent action seems to be a case in point. She had suffered from lupus erythematosus since 1921 and had tried various treatments. By 1926, she said, the disease seemed to have quieted down. In 1932 she was recommended by friends to consult Mr. Stanley Lief, an unregistered practitioner who conducts a sanatorium at Champneys, Wigginton, near Tring. She entered this establishment on Feb. 20th and was put on a strict fruit diet. On March 8th she was given, according to Mr. Lief's evidence, mercury-vapour lamp treatment, the lamp being placed 30 inches from her face for one minute. This dose of light was increased, the biggest being for eight minutes at the same distance. Mr. Lief thought the patient's face looked much better when she left on March 24th. She came to his house in Park-lane on April 4th, when he used a Kromayer lamp, placed 1½ inches from her face for one minute. He said he saw no change in her face on April 11th when he gave similar treatment. Mrs. Walton eventually sued Mr. Lief (and Natural Healing, Ltd.) for personal injuries alleged to be caused by the defendants' negligence and breach of warranty. On the latter point she said that Mr. Lief had definitely undertaken to cure her and had failed. In April, 1931, there had been one or two scars on her face but none on her scalp; after she had been treated by Mr. Lief the disease had extended over the whole of her scalp and both sides of her face, the disfigurement being permanent. As to the negligence, she said she was wrongly and improperly treated by radiation and that the diet given her was insufficient.

Lord Horder, giving evidence for the plaintiff, said that irritants were to be avoided; they produced a recrudescence of the disease and a more acute condition. Very small doses of X rays might have a healing effect but they must be measured with extreme care. He would not himself have recommended radiant heat for Mrs. Walton. Starvation treatment was a bad preface to local treatment; it might make the patient more susceptible to overstimulation. It was an unfortunate type of case to get into the hands of inexperienced persons because wrong treatment might do great harm. Medical practitioners, giving evidence in support of the defendant, expressed the opinion that Mrs. Walton might have benefited by ultra-violet rays; the disease "flared up," they said, for reasons which were not known and were not necessarily connected with the rays. One of these witnesses for the defence, Mr. J. E. R. McDonagh, stated in cross-examination that, when treating patients for this disease, he had never advised them to have starvation for a month; he himself would not now advise ultra-violet ray treatment because other treatment might achieve better results.

On the issue of the warranty Mr. Lief denied having promised to cure; he was pressed, however, with statements in his newspaper *Health for All* to the effect that no disease (except cancer, tuberculosis, and paralysis) was incurable at Champneys.

The Lord Chief Justice having summed up, the jury withdrew. After two and a half hours they asked if a majority verdict would be accepted by the parties; the answer was in the negative. Half an hour later they returned the following findings. On the question whether Mr. Lief and Natural Healing, Ltd., had represented and warranted that he was in a position to effect a complete cure of Mrs. Walton's disease, they found for the plaintiff; on the question of negligence they found for the plaintiff also. But their award of damages was surprising. They limited the damages for the breach of warranty to £123 16*s.*, "the amount of the bill as stated in court," and they awarded only a farthing for the negligence. These awards of contemptuous or trivial damages raise important technical questions about costs for future argument and determination. It is a reasonable inference that the verdict was a compromise. If Mrs. Walton was (as the jury finds) the victim of negligence and a broken guarantee, substantial damages might be expected to follow. Yet if trial by jury occasionally produces these odd results, what is the alternative? Decision by medical experts is accepted in workmen's compensation cases but a tribunal of medical experts would scarcely have been acceptable to both sides in Walton *v.* Lief.

THE JURY'S RIDER

The jury added a rider that all institutions of the character of Champneys should be subject to supervision by some Government authority. To this invitation Parliament is unlikely to respond. Orthodox medical practice can always count on its critics; anyone who supposes that Parliament is a zealous supporter of the vested interests of registered medical practitioners need only be reminded that, when the 1927 Act subjected nursing-homes to registration and inspection, Section 7 allowed an important exception. The public must learn the value of the relative qualifications of healers. Mr. Lief's credentials, alphabetically stated, included the letters M.N.C.A. England, D.O., D.C., and N.D. He explained them to Sir Patrick Hastings. M.N.C.A. means Member of the Nature Cure Association and has, as Lord Hewart elicited, nothing to do with chartered accountants; Mr. Lief obtained this title without examination; it is not a degree, though the Association has schools in America. The suffix "England" means that there is a branch in this country; Mr. Lief is president of that branch. The degree D.O. (doctor of osteopathy) was conferred on him in 1920 by the American College of Osteopathy after examination by a body on which doctors were represented. For his D.C. (doctor of cheiropractic) he attended the American College of Cheiropractic in Chicago which seems to be connected with the College of Osteopathy. The degree of N.D. (naturopathic doctor) he obtained at the Macfadden College, Chicago, to which a health resort is attached. Nobody suggests that these qualifications are spurious. Lord Jessel's University Degrees Bill, if it passes, will not touch Mr. Lief's degrees, titles, and descriptions, except that, in so far as they are exotic, the Bill proposes that the name and place of the institution which conferred them should be stated. An imposing series of letters after a name (the word imposing is used in the best sense) is employed presumably to impress prospective patients; naturally it is desirable that the latter should be able to assess relative values. There is neither tariff nor quota for medical qualifications, but there may be patients who prefer the home product.

The public should also be enabled to distinguish, if it so wishes, between registered medical practitioners who are remunerated by fees and are debarred from indirect commercial exploitation of remedies and other practitioners. Mr. Lief was associated in his practice and in the recent litigation with a company called Natural Healing, Ltd.; it has, he said, about a dozen shareholders and he himself holds 5425 out of the 10,000 shares. The company owns the newspaper *Health for All*; it also owns the Sani-Supplies Company which sells certain foods and apparatus. Mr. Lief and two other directors own 20,000 ordinary shares in Modern Health Products Ltd., a concern which sells Natex Health foods. These undertakings advertise in *Health for All*, of which Mr. Lief is editor. There is nothing sinister in this interlinking of commercial interests. but the public possibly does not appreciate the fact that professional etiquette discourages the orthodox doctor from adopting such a system. Mr. Lief has had as many as 100 patients at Champneys at a time; Mrs. Walton says she was charged 12 guineas a week for a room on the top floor. With *Health for All* stating that no disease except the three already named is incurable at Champneys, and with Mr. Lief guaranteeing (as the jury found) to cure lupus erythematosus, it must be a profitable business. Nobody suggests that treatment at Champneys has always been as unsuccessful as it was in curing Mrs. Walton's disease. But others besides the Lord Chief Justice will wonder how far osteopaths are qualified to administer radiant heat treatment and by what process of elasticity the use of the mercury-vapour lamp is brought within the province of nature cure.

Workmen's Compensation (Medical Referees' Powers)

Litigation over workmen's compensation has been copious, but an important question about a medical referee's powers has remained undecided until the House of Lords settled it last week in Wemyss Coal Co. *v.* Haig. Dermatitis produced by dust or liquids is one of the industrial diseases within the Workmen's Compensation Act, so that disablement therefrom amounts to an accident entitling the workman to compensation. Haig, a mine repairer, contracted this disease in 1928. Disablement began on Dec. 10th of that year; the Wemyss Coal Co. admitted liability and paid compensation till June, 1930, when he commuted his claim for a lump sum payment of £100. He was re-employed above ground in 1931 and was presently sent underground for a short time when he again suffered from dermatitis. Being disabled from earning full wages by reason of the industrial disease, he obtained from the certifying surgeon a certificate of disablement as from Oct. 20th, 1931. Under Section 43 (1) (*f*), if either the employer or the workman is aggrieved by the action of the certifying surgeon "in giving or refusing to give a certificate of disablement." the matter may be referred to a medical referee for final decision. The employers, alleging that they were aggrieved, caused the matter to be thus referred. They were not so much aggrieved by the giving of a certificate of disablement as by the fact that the certifying surgeon dated the disablement as at Oct. 20th, 1931; they argued that the dermatitis was not a new disablement but a recurrence of the old disablement of December, 1928. The medical referee found that Dec. 10th, 1928, was the date on which the disablement from dermatitis began. Thus in effect he altered the date fixed by the certifying surgeon. The Court of Session held by a majority (Lord Murray dissenting) that the medical referee had no power to alter the date. The employers appealed to the House of Lords where a strong court unanimously took the opposite view.

How, it may be asked, do two sets of distinguished judges manage to differ thus in interpreting the Act? The answer is that a proviso to Subsection (2) of Section 43 expressly authorises the medical referee to fix the date of disablement where he allows an appeal from a refusal by the certifying surgeon to grant a certificate. There is a principle of statutory interpretation that, if one thing is expressly mentioned, another thing not so mentioned is deemed excluded. It was therefore arguable that if Parliament expressly authorised the medical referee to fix the date of disablement in one case (on refusal of a certificate), he had no authority to fix it in other cases not expressly mentioned. The Scottish court acted on this principle. The House of Lords felt able to take a wider view. Lord Atkin contrasted the functions of the certifying surgeon, exercised at the instance of one side only, with those of the medical referee which are exercised after hearing both sides; the medical referee, he said, has appellate jurisdiction and remedial powers. The certificate as a whole is subject to appeal. A self-respecting medical referee would hardly be content merely to affirm a certifying surgeon's decision which seemed correct as regards the fact of disablement by disease, but incorrect (perhaps by six months) as regards the date of the onset of the disease. Lord Atkin did not suppose medical referees had in practice regarded themselves as unable to alter the date of disablement; if they altered the date of disablement, they were within the law. Thus an important legal point is cleared up, but we are still left wondering why a victim of industrial disease is allowed to expose himself a second time to the risk of disablement.

Property in Radiograms

If a radiogram is made in the course of diagnosis and treatment, who is the owner? The *Journal* of the American Medical Association (June 17th) summarises a recent judgment of the municipal court of Dayton, Ohio, on this subject. The court decided that the radiogram does not belong to the patient unless there is express agreement to that effect. The facts in the case were briefly these. A dentist advised that an X ray photograph be taken of a patient's teeth. This was done at a charge of 10 dollars. At a second visit the dentist stated his diagnosis and recommended certain work, charging 5 dollars for his services on this occasion. The patient decided not to have the proposed work done and asked for the radiogram which the dentist declined to hand over. The patient paid the 5-dollar charge, but refused to pay the fee for the radiogram. The dentist sued for the latter fee. The court held that radiograms are not bought and sold like other chattels. The dentist or doctor equips himself, said the judge, with the X ray machine; the resultant photograph is part of the record of the case and part of his office equipment; its sole value is for the purpose of diagnosis and professional information. The dentist or doctor sells, and the patient buys, professional knowledge and experience, not mere photographic material. In the litigation in the Ohio court the plaintiff dentist gave evidence that it was customary for the possession of radiogram films to remain with the person who has taken them; there was no evidence of any express agreement to transfer ownership of the film from plaintiff to the patient. The court expressed the opinion that the retention of the film by the person who made the radiogram was necessary as part of the records of the case. The radiograms, it seems, were classed with temperature charts and other data collected and preserved for professional services towards the patient. The court declined to imply a contract to hand over the films or photographs to the patient. The decision is understood to coincide with previous American decisions though no ruling has yet been given by an appellate tribunal. The point seems not yet to have been examined in the English courts, though a correspondent raised it in our columns 18 months ago (THE LANCET, Jan. 2nd, 1932, p. 56).

In the American case the dentist seems himself to have supplied the radiographic appliances and results. If in England a doctor or dentist calls in the services of an independent expert in order to obtain a radiogram, other elements are introduced. Is the doctor or dentist an agent? Does the patient enter into any contract with the maker of the radiogram? The Copyright Act contains definite provisions as to copyright in a photograph, but copyright law is outside our discussion unless some question of publication arises. The American court's view that radiograms are, like temperature charts, part of the records of the treatment of particular patients, is useful. So long as there is continuous treatment by the same medical adviser, it would be natural that radiograms should remain in his custody; and possession is nine points of the law. If the patient summarily changes his doctor, can he persuade a judge to say that the later doctor is entitled to see the earlier doctor's case-book? What has the patient been paying for? Treatment alone, or treatment plus records? All these questions of express or implied contract will have to be decided upon the special facts of each case whereon professional practice and custom will throw light. A final consideration is that the detailed information acquired in diagnosing and treating patients is confidential. A surgeon who spends his days in removing appendices or gall-stones may not always, in Lord Riddell's words, "realise that his patients may desire to preserve the secrets of their truncated anatomies." But it would be unfortunate for the dissemination of professional knowledge if experienced practitioners were prevented from the discreet and anonymous citation of individual cases in support of general conclusions.

Medical Club Fraud

Philip Morris, an unemployed labourer, was sentenced to 15 months' hard labour at Liverpool Quarter Sessions last month on charges of forgery and fraud in connexion with the "Merseyside Medical Club." The accused in his evidence said he was originally a miner and had experience of medical clubs at collieries. He and his son instituted the club to provide medical attention and treatment for mothers and children under 16 for a subscription of 6*d.* a week per family. The doctors were to receive 13*s.* a year, subsequently increased to 15*s.* a year, for each family. As many as 70 members had been enrolled. He employed canvassers and agents and paid £102 rent for the club premises. He made no money out of the club but had hoped it might be a means of living for his son. The undertaking would have made money, he said, if the British Medical Association had not circularised the doctors associated with the club and caused them to withdraw their services at short notice. The assistant recorder deprecated any digression into questions of medical ethics. After the jury had found its verdict, a police officer said that Morris had previously been in trouble over the Midland Thrift and Benefit Society which he had founded in Liverpool. He had been prosecuted for misapplying friendly society funds and had been fined (with the alternative of imprisonment) and ordered to pay 50 guineas costs. Last March he was fined for fraudently abstracting electricity at the premises he occupied. Lately he had been receiving 23*s.* a week by way of public assistance. The assistant recorder, passing sentence for what he described as cruel frauds on the unemployed, recommended that there should be closer supervision of medical clubs of this kind; "possibly the City Council will see that some by-law is passed that people who form these societies should register and give particulars with regard to capital and working arrangements." Legislation by local Act rather than by by-law would probably be necessary, but a statute of general application would be better still. It is obvious that those who institute and manage undertakings of this nature should be persons of responsibility and approved character.

IRELAND

(FROM OUR OWN CORRESPONDENT)

NURSES AND THE SWEEPSTAKES

In the Senate last week, in the discussion on the Public Hospital Bill, an amendment was carried which empowers the Minister to give grants from the Sweepstakes' Funds "to any organisation established in the Saorstat for the provision of a pension fund for aged and infirm nurses." Opposing the amendment, Dr. C. Ward (Parliamentary Secretary to the Department of Local Government and Public Health) said he would like to see pensions for nurses who had to give up their work through incapacity, old age, or infirmity, and he would also like to see their remuneration prospects and status generally improved in this country. But the amendment did not set up a pensions scheme, and did not say what organisation would be responsible for the administration of such a fund; nor did they know whether the nurses would be expected to contribute to it. The amendment would virtually shift from the hospitals and local authorities responsibility for the superannuation of certain classes of nurses.

The discussion showed that those who supported the amendment were moved by sentimental motives, and references were made by them to the fact that "nurses were shockingly badly paid." Medical men, above all others, are likely to have sympathy with the position of nurses, but the fact that any particular class of the community is badly paid is no reason for demanding that it should be helped out of funds raised by the hospitals for charitable purposes. The remedy is to put the nursing profession on a sound economic basis. The nurses themselves in looking for or accepting quasi-charitable assistance are signifying their acquiescence in their present conditions of employment.

NATIONAL HEALTH INSURANCE

The Select Committee of the Senate on the National Health Insurance Bill, having collected a considerable volume of evidence on the subject running to some 68 closely printed pages, has contented itself with a report of a few paragraphs. It expresses the opinion "that it is essential that the National Health Insurance Bill, 1933, should be passed if a scheme of national health insurance is to continue without serious financial embarrassment. The main defects in the present system that appear from the evidence tendered would seem to arise from the difficulty of control in the matter of medical certification and from non-compliance with the existing law. In both these respects it is likely that the provisions of the National Health Insurance Bill, 1933, will enable improvements to be made." The committee adds two minor amendments dealing with compensation to existing officers of approved societies.

It is possible that non-compliance may be less with a unified society, but one can hardly find much support in the evidence for the view of the committee that medical certification will be rendered more effective by the change. There is a real danger that the interests of the sick member may be sacrificed.

EDINBURGH HOSPITAL FOR CRIPPLED CHILDREN.—Mr. Noel Skelton, M.P., Under-Secretary of State for Scotland, recently formally opened this hospital at Fairmilehead. The building and its equipment have cost over £96,000, and there is accommodation for 150 patients. There is a per capita charge of £2 5*s.* per week for patients paid for by local authorities; private patients pay £2 15*s.* A plan of coöperation between Edinburgh corporation and the hospital is being prepared. The institution actually began to receive patients ten months ago, and during that period 43 patients have been admitted; 11 have been cured and 12 sent home with their condition improved.

WINGFIELD-MORRIS ORTHOPÆDIC HOSPITAL.—On June 30th the Prince of Wales opened the new buildings of this hospital at Headington, Oxford. The institution has hitherto mainly been housed in the wooden Army huts of an old war hospital. When it was no longer feasible to keep them in repair, Sir William Morris offered £70,000 for complete rebuilding. The new buildings, which are a quarter of a mile long, include, among other accommodation, private, recovery, women's and children's wards, a gymnasium, and a thermal bath. Mr. G. R. Girdlestone, the honorary surgeon, has defrayed the cost of rebuilding the workshops, which give two years' training to about 30 crippled young men in carpentry, shoemaking, and the like. The old Wingfield Hospital has been renamed in honour of Sir William Morris, to whose generosity the Prince of Wales paid a warm tribute.

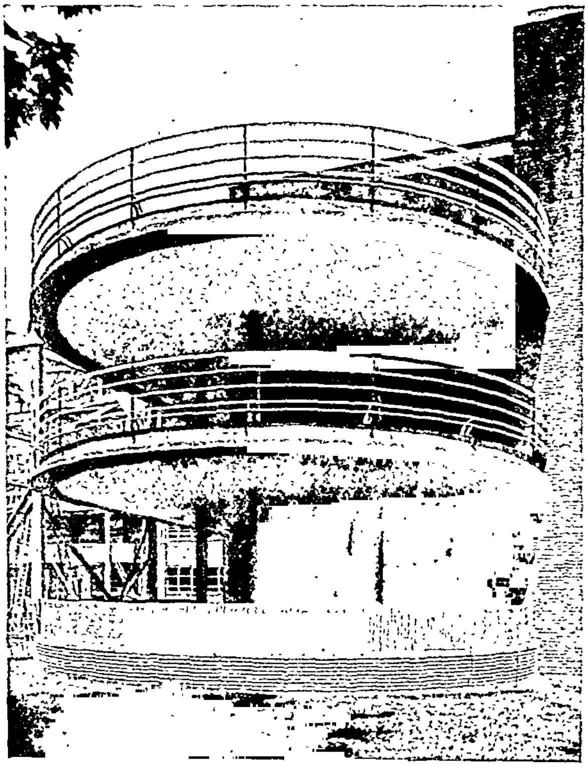
THE FREEMASONS HOSPITAL

On Wednesday of this week the King opened the new Freemasons Hospital at Ravenscourt Park, Hammersmith. The Brotherhood have long desired a larger and better hospital than the one in Fulham-road, but the late war postponed any realisation of their hopes. At the same time, if the new hospital had been built even five years ago it could not have come up to its present standard.

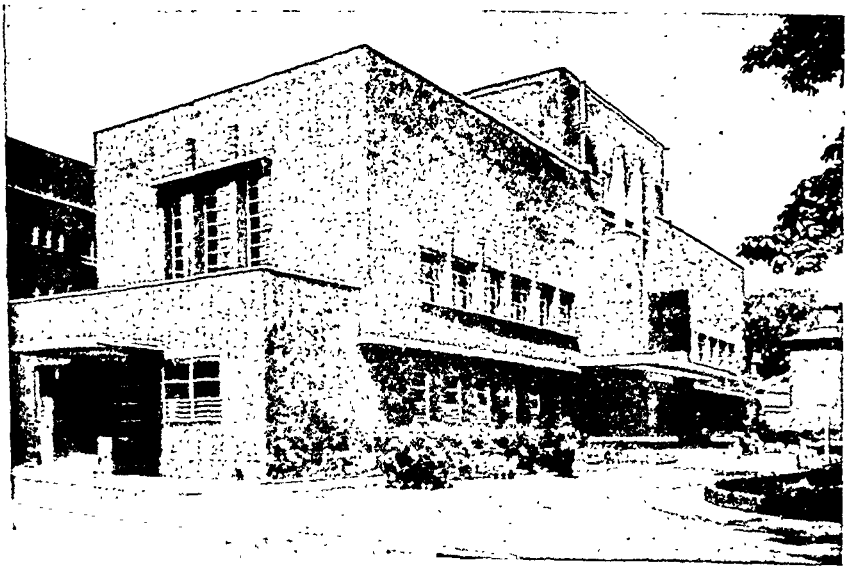
The aim has been to make the building an expression of the need to cure the patients and also to enlist the help of nature in the process. Thus the design is calculated to give the maximum amount of light, air, and cleanliness. All the roofs are flat; the window-spaces are enormous, in the modern plan of masses of horizontal rectangular panes. One of the most striking features of the building is a number of great projecting semi-circular sun balconies. The landings are lighted by shafts of glass running sheer from ground to roof. The buildings are surrounded by lawns and beds of flowers, and the site, although only about five miles from Harley-street, is almost rural, for Ravenscourt Park gives it an open outlook on two sides, and the upper windows look out to the open country of Hounslow Heath and the Surrey hills.

The hospital consists of four blocks built in cubical masses of red brick. The main entrance is on the east side, opposite the park, in the administration block, which is T-shaped with the head of the T parallel with the road. Opening off the large main hall, with its dedication stone, are passages leading to the numerous offices, dining-rooms for typists and doctors, waiting-rooms and cloak-rooms necessary in the running of the hospital. On the first floor are the resident doctors' bedrooms and sitting-rooms, the reception-room, and the board-room, with two roofed terraces. Above are the flats of the matron and assistant matron, and highest of all are the quarters of the cooks and food supervisor.

The back of the administration block opens into the ward block, which is U-shaped and five floors high. This building contains 120 single-bed wards and 20 four-bed wards. These rooms are decorated in quiet green colours; they are sound-proof and beautifully lighted; each patient has his own bell-push, set in a rubber ball, so that he can keep it in bed, a plug for wireless head-phones, and a bed-light. The bell gives a visible as well as an audible signal. Each ward has a fitted basin and tubular steel furniture. Each group of wards has a sluice-room, with a cascade sink for bottles and an automatic washing cabinet for bed-pans, and each floor of each wing has its own kitchen fitted with hot cupboards, milk boiler, and gas stove, where simple meals can be prepared and where most of the food arrives by lift for distribution. A sister is in charge of each floor and sits in a room open to the corridor, containing the medicine and poison cupboards, and the switch which adjusts the strength of the broadcasting.



One of the sun porches of the ward block.



The front of the Administration Block.

The children's wards are on the third floor, with wide roof terraces, and the kitchens and food stores are on the top floor, where they can neither be heard nor smelt. Special kitchens are devoted to kosher food for Jewish patients and to the preparation of special diets. The nurses have comfortable rooms for their use on duty and in their short intervals of leisure, but at present they have to walk over from the nurses' home in Fulham-road. One of the chief needs of the hospital is its own nurses' home, and this will shortly be supplied. The ward block has a system of light signalling by which any member of the staff can be summoned to the telephone.

From the back of the ward block a passage opens into the small annexe block, which contains the boiler rooms and the ambulance reception hall, and behind that again is the electrical and surgical block. The ground floor of this block is filled with the staff dining-rooms, kitchens, and pantries; on the first floor are the radiological and physiotherapy departments, and on the second the operating theatres. The radiological department has not yet been fitted up, but it will have the largest installation of the kind in the country. The generators will be capable of an output to the tubes of 5 amperes. The physiotherapy department is fitted with many kinds of electric bath, apparatus for light treatment, and a gymnasium for remedial exercises. These two departments are the only ones admitting out-patients.

The surgical floor shows much ingenuity of design. There are two groups consisting of anæsthetic rooms, operating theatre, and sterilising rooms, and between the two groups are a plaster-cast theatre and an X ray theatre. The surgeon undresses in a cloakroom with fitted basins and shower-bath, puts on a sterile change of clothing and walks into the anteroom where he scrubs up and finds his gown, mask, and gloves, and where his instruments are ready prepared for him; he walks through to the operating theatre and meets the patient, who has come from the anæsthetic room. After work he leaves his theatre-dress in the anteroom and goes back to his own dressing-room. This floor contains special theatres for ear, nose, and throat work, eye work, dentistry and the like, and rooms for surgeons and staff. The sterilisers are fed from the central boilers, and are of the enclosed type, which has not been seen much in this country but which is very comfortable in use. Before they are opened a tap is turned and the chest is flooded with cold water to condense the steam and cool the instruments to handling temperature.

The whole building is almost fireproof, but is equipped with elaborate fire-fighting appliances. Fire-alarm buttons are placed at suitable points and show a red light and sound a buzzer in the quarters of all responsible officials, though no alarm is given to the patients. The hoses are of small size, capable of being handled by women, and two chemical extinguishers are kept in each hose cupboard. The steam supply for the whole hospital is generated at one point. The boilers are oil-fired, and the hospital is heated by vapour circulated by means of vacuum pumps. There are 14 electric passenger lifts, including two special bed-lifts, with self-levelling devices at every floor. A unique feature is an emergency button which, if a lift stops between floors through electrical failure, will allow it to be moved to the next floor. In addition there are lifts for food, supplies, soiled linen, soiled dressings, and X ray photographs.

The architects are Sir John Burnet, Tait and Lorne, and the total cost of the hospital has been about £335,000. The chairman of the medical advisory committee is Sir D'Arcy Power.

PUBLIC HEALTH SERVICES

Malnutrition in Children

The early reports for 1932, reviewed in this column on June 17th, gave an impression that "malnutrition in school-children is not common, but its comparative rarity must be due to the many active measures taken to combat it." Those that have reached us since then bring out the fact that school medical officers of different localities see very different aspects of this problem.

Some of them, perhaps the majority, do not think it necessary to comment at all on unemployment and its effect on children; nor do they record any special measures for supplementing diets. Others have evidently given careful consideration to the situation, but do not lay much emphasis on damage resulting from pure poverty. Thus Dr. A. W. Forrest states that subnormal nutrition is not an important, nor very common, defect among Leyton school-children. "For the most part, these cases are due to a temporary derangement of health, a hereditary factor, unsuitable dietary, or in a few cases insufficient food." Dr. J. A. M. Clark reports that in Walsall there is as yet little evidence that malnutrition exists to any extent. The problem to-day, he says, is no new one; it is a problem not so much of insufficient as of improper food.

A third and large group of reports mention increases in feeding at schools and express more or less satisfaction with the results. The following are examples:—

Edinburgh (Dr. John Guy).—Measurements of height and weight continue to show a general upward trend and the diminution in children with bad nutrition is also noteworthy. Last year the education committee supplied, during the session, [illegible]176,634 dinners to scholars. The daily number of children, at the close of the session, receiving the meal was 6221 of whom 4720 were on the free food roll. Under the milk scheme 5025 children got a daily ration, on payment, of Grade A (T.T.) milk, and 342 got free milk because, despite free meals, they still seemed to be too poorly fed to profit by the education offered. (A recent inquiry into the physical condition of 77 Edinburgh families revealed no cases in which there was undernourishment because of lack of means; see The Lancet, July 8th, p. 98.)

Nuneaton (Dr. P. G. Horsburgh).—There is no provision of milk under the Education Act (Sections 82–85), but the education committee have a scheme for supplying milk during school hours to those who need it. This has done much good and is of great benefit to the selected children.

Edmonton (Dr. H. W. Harding).—Unemployment is marked in the district and is reflected in the amount of milk granted by the maternity and child welfare committee and the number of free meals to necessitous children under the arrangements made by the education committee. With regard to the former, the restriction made during 1931 was still in force—namely, that milk should be given to mothers only who are in regular attendance at the welfare centres. The number of free meals to school-children was over 56,000 in 1931 and nearly 113,000 in 1932.

Kettering (Dr. C. B. Hogg).—Only two definite cases of malnutrition were found during the year. This small number, notwithstanding the increased amount of unemployment, is no doubt due to the provision of milk in school and meals at the school canteen centre.

Bury (Dr. G. Granville Buckley).—The corporation has arranged for the provision of free milk (fresh and dried), or milk at half cost, to necessitous cases in which the family income comes within the limits of a prescribed scale. During 1932 many more applications were received.

Warrington (Dr. G. W. N. Joseph).—No deterioration in the nutrition of the child has been observed. "Whether or not this is due to the 'milk in school' schemes cannot definitely be assessed. I think it is, but whatever the cause the result is one which we are glad to record, as showing that the nutrition of the school-children in Warrington is not suffering in these times of economic stress."

Lancashire (Dr. J. J. Butterworth).—The percentage of children showing malnutrition at the routine inspections was 1·55 (compared with 2·16 in 1930 and 1·48 in 1931). The children in receipt of free meals or milk, cod-liver oil, &c., form about 7·75 per cent. of the children on the roll of the elementary schools. The selection for free meals is made on an economic basis in accordance with a scale fixed in 1929. During the year it was found necessary to allocate a further sum of £5000 in the estimates for the cost of free meals, and the expenditure under this heading is now at the rate of £25,000 per annum. "It is quite evident that the expenditure of this money has been of considerable value in keeping down the percentage of malnutrition to the low figures ascertained for this and the previous year, if the routine groups may be regarded as a fair sample of the whole." "It would appear that the health of the elementary school-children has not been adversely affected to any noticeable extent by this depression."

Where the statistical returns seem satisfactory the question remains whether they tell the whole truth. "It is almost impossible to understand," says Dr. Kenneth Fraser, "why the malnutrition figure among the elementary school-children (in Cumberland) does not rise under existing conditions. There is no doubt that large numbers of children are carrying on to-day in this county without adequate food." As a rule, however, a shortage of food falls rather on the parents —especially the mothers—than on the children; and while there is so far no general incidence of malnutrition there were at the end of last year 1204 children receiving free milk on account of their debilitated condition. Moreover, he believes that height and weight do not afford a complete index of health; an imponderable failure of nutrition may impair resistance to influenza or tuberculosis. (Incidentally Dr. Fraser does not believe in distributing milk throughout the year. More children could get benefit if there were occasional breaks, and it would be well to concentrate on the first three months of the winter.)

Dr. W. M. Ash says that inquiry in Derbyshire last October suggested that the school-children were faring better than one would anticipate, but adds: "I would like to make it quite clear that this is not to be interpreted that I am satisfied that the children are getting plenty. There are many instances of poverty where the bare necessities alone are being provided." At Darlington Dr. G. A. Dawson records that for 18 years the average height and weight has increased consistently in all age-groups, but also says: "One must admit that the adequate feeding of a growing school-child cannot be carried out with any measure of ultimate safeguarding of the health on the meagre national allowance of 2*s*. per head over a prolonged period. Similarly, Dr. A. A. E. Newth, of the city of Nottingham, in reporting that no deterioration of health has yet been observed, remarks that "recent publications on the feeding of children, when taken in conjunction with the amount of money known to be available in the homes of many of our families, suggest that there must be a large number of children who are not receiving adequate diets." The same point is made by Dr. Thomas Gibson, who finds a continuing improvement in the nutrition of the children, but adds that there are a large number of families in Wakefield where adequate or proper feeding is not being carried out, and can scarcely be carried out, because of lack of money.

> "The stock diet of these families," he says, "almost wholly farinaceous, may not lead to obvious malnutrition in the ordinary sense, but it is bound to affect their stamina and resistance to disease. I have noticed lately at the school clinic an unusual number of cases of eye affections, such as blepharitis and phlyctenular conjunctivitis, and I am inclined to think that improper feeding may be, at least, one of the causes. It is indeed difficult to see how children can be fed properly on the income of some of these families. A recent inquiry, based on the applications for dried milk under the maternity and child welfare scheme, showed that there were 160 families, many of them including school-children, where the income per head per week, after deducting the rent, was less than 6*s*. and in some cases less than 5*s*. or even 4*s*. Out of this allowance have to come food, clothing, fuel, lighting, and all the general household expenses. Some mothers are better managers than others, but it is difficult to see how the most efficient mother could adequately feed her children out of the low sums allowed, even if she had nothing else to spend the money on."

Dr. Gibson comes to the conclusion that there must be a considerable amount of insufficient feeding in Wakefield. The extent of this insufficiency is not to be gauged by the number of malnourished children in the schools, but by the degree of poverty or necessity existing in the families from which the school-children are drawn.

Another medical officer who is evidently anxious to dispel any undue optimism is Dr. Vynne Borland. Writing of Bethnal Green he says:—

> "While unemployment insurance benefit and public assistance go some way to mitigate the worst results of this long-continued acute poverty of a large section of the population, I am increasingly anxious concerning its eventual effect upon the health standards of the borough. It will be remembered that the actual results of the physical deterioration of the peoples of Central Europe in consequence of the blockade during the Great War did not fully manifest itself until after the war. Similarly it may be that we shall not be able to estimate the true reflex of the present deprivations for some years and not alone in possibly raised morbidity- and mortality-rates but in the set-back to the rising standard of health which was fairly definitely indicated before the present industrial depression."

At Bethnal Green Dr. Helen Mackay conducts a special consultation clinic, and Dr. Borland quotes her statement that although the children seem to be of much the same type as in previous years there is a definite falling-off in the health of the mothers. If this be so, she says, the retrogression before long is likely to affect the children too.

Of the few reports that offer evidence that failure of growth had already taken place last year, the most striking is that of Blackburn, where Dr. V. T. Thierens finds that the standard of nutrition continues to decline, and in the case of boys is now actually lower than during the war. Further south Dr. Dunstan Brewer notes "some decline" in the level of nutrition at Swindon, where 89 children definitely malnourished were discovered, compared with 34 in 1931. At Bury St. Edmunds, again, Dr. Ernest Stork holds that a striking increase of defects among school entrants may easily be attributed to recent economic conditions. On the whole, however, the tone of the reports is reassuring about the effects of the crisis on the physique of English children. The reserve which remains in the mind of readers was well expressed in an editorial last week in the *Medical Officer*. After referring to the great adaptability shown in childhood the writer points out the difficulty of being sure whether this adaptation is physiological or pathological. The article continues:—

> "So it is just possible that our children *can* live on unemployment diet and that our failure to find ill-nutrition amongst those who have to submit to it is really due to there being no malnutrition to discover. But against this we have such weighty physiological arguments that most of us believe that the malnutrition is there but that we are ignorant of the form it takes and so do not detect it. The politician is relieved that so far we cannot say that our children are suffering from the depression; but the physiologist is not, for he knows that the worst troubles of man are those that lie latent, to be revealed only when the organism is exhausted and incapable of relief."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 1ST, 1933

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 14 (last week 8); scarlet fever, 2249; diphtheria, 770; enteric fever, 42; acute pneumonia (primary or influenzal), 600; puerperal fever, 37; puerperal pyrexia, 75; cerebro-spinal fever, 29; acute poliomyelitis, 13; acute polio-encephalitis, 3; encephalitis lethargica, 8; dysentery, 21; ophthalmia neonatorum, 77. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 4th–5th was as follows:—Small-pox, 35 under treatment, 1 under observation (last week 39 and 1 respectively); scarlet fever, 1873; diphtheria, 1621; enteric fever, 13; measles, 483; whooping-cough, 371; puerperal fever, 24 (plus 8 babies); encephalitis lethargica, 250; poliomyelitis, 1; "other diseases," 223. At St. Margaret's Hospital there were 22 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox or enteric fever, 27 (4) from measles, 8 (2) from scarlet fever, 13 (4) from whooping-cough, 22 (2) from diphtheria, 34 (3) from diarrhœa and enteritis under two years, and 17 (3) from influenza. The figures in parentheses are those for London itself.

Nine deaths from measles were reported from Liverpool, 4 from Rhondda, 2 each from South Shields and Bristol. Liverpool also reported 7 deaths from diphtheria; Hull, Manchester, and Birmingham each 2. Four deaths from diarrhœa were reported from Birmingham, 3 from Liverpool, 2 each from Walthamstow, Manchester, Newcastle-on-Tyne, Sheffield, and Nottingham.

The number of stillbirths notified during the week was 281 (corresponding to a rate of 42 per 1000 total births), including 49 in London.

PANEL AND CONTRACT PRACTICE

Some Insurance Statistics for London

IN view of the coming of age of the National Insurance Act to be celebrated next week, the statistical information with regard to London published in an appendix to the last agenda paper of the London Insurance Committee is of especial interest. Among the facts brought to light are the following:—

Lists and registers.—The number of practitioners on the medical list at the end of March was 2049; the number of insured persons at the same date was 1,925,564. This figure is slowly decreasing. During the quarter ending March 31st, 1933, 14,987 insured persons moved from one address in London to another more than two miles away, whilst 21,216 moved out of the County of London.

The average number of insured persons per list (excluding assistants and limited lists) is 1030. Applications for refund of fees (Clause 7 (2) Terms of Service) numbered 280. The amount of fees charged was £52 15*s.* 10*d.*, with chemists charges amounting to £10 16*s.* 10*d.*; 65 fines were imposed, amounting in all to £3 3*s.* 2*d.*

NUMBERS OF INSURED PERSONS PER PRACTITIONERS

The number of practitioners with lists of insured persons is arranged in groups of 250.

There are 514 practitioners with lists of under 250—i.e., just under 25 per cent.—and 1078 practitioners (that is 52 per cent. of the practitioners under contract with the committee) with lists of less than 1000. The limit for any one practitioner is 2500 and there are 642 doctors (31 per cent.) who have more than 1000 but less than 2500. Doctors with longer lists who must either be in partnership or have an assistant are comparatively rare. There are only—

8 doctors	with	between	3500	and	3750	insured patients.
8 ,,	,,	,,	3751	,,	4000	,, ,,
8 ,,	,,	,,	4001	,,	4250	,, ,,
1 doctor	,,	,,	4251	,,	4500	,, ,,
2 doctors	,,	,,	4501	,,	4750	,, ,,

In other words 1·3 per cent. only of the doctors under contract have lists between 3500 and 4750. Thus the common impression that most insurance doctors, especially in London, have huge lists is proved to be quite untrue.

Change of doctor.—During the first quarter of the year 5152 transfers were effected.

Prescriptions dispensed.—The total number of prescriptions dispensed during this quarter was 2,835,923, costing £381,122 15*s.* 4*d.* for ingredients and £52,755 2*s.* 2*d.* for dispensing fees. The average cost of ingredients per prescription is 3·23*d.* and of dispensing 4·46*d.* The number of prescriptions per insured person is 1·48, costing 11·37*d.*; both these last figures are much above the average as this particular quarter included an influenza epidemic at the beginning of the year.

PRESCRIPTIONS DISALLOWED

During 1932, 619 prescriptions for appliances were disallowed. These included 193 brushes, 34 droppers (not eye), 88 eye shades, 48 finger-stalls, 43 syringes, 63 wool packets (thermogene or capsicum), and 27 glass or rubber tubes. Thirty-eight prescriptions for preparations which do not form part of medical benefit were disallowed, including camphorated chalk, saccharine tablets, sugar of milk. The cost of 23,666 prescriptions for insulin during the year was £7810 7*s.* 3*d.*; 238 prescriptions, costing £29 14*s.* 9*d.*, for drugs usually administered by a practitioner in person were disallowed, since doctors are paid 1*s.* 3*d.* per 100 persons on their list to cover the cost of such medicaments. Examples of this are hypodermic preparations of morphia (65 prescriptions) and solutions of drugs for hypodermic use such as camphor, cocaine, digitalis, hyoscine, strophanthus, strychnine (in all 22 prescriptions).

It would appear sometimes difficult to decide whether some of these regulations should be so rigidly enforced for it costs much more in labour and postage to write about disallowed prescriptions for, say, appliances that are not in the schedule than the value of the appliance. For example, a temperature chart was disallowed. This could not possibly have cost as much as postages on the letters about it, but it must be remembered that the drug fund pays for the chart whilst the general purposes fund pays for postage.

It is noteworthy that since 1913 nearly 130 million prescriptions have been dispensed in London alone, costing just over four million pounds.

NEW COUNTY WESTMEATH HOSPITAL.—Mr. Sean T. O'Kelly, Minister for Local Government and Public Health in the Irish Free State, recently laid the foundation-stone of the new General County Westmeath Hospital near Mullingar. The cost is estimated at £51,000, of which £44,000 is to come from the proceeds of the sweepstakes and the remainder from the county rates.

INSTITUTE OF RAY THERAPY.—On June 21st the Princess Royal paid an informal visit to this institute in Camden-road, London, N.W. She was escorted over the building by Dr. William Beaumont, the honorary medical director, and the hon. secretary, Miss Winifred Beaton (Mrs. Beaumont). Between Jan. 1st and June 21st of this year the institute carried out 49,809 treatments, and 982 new patients were enrolled. During its three years of existence patients have been referred by 1296 medical practitioners.

CORRESPONDENCE

CLAUSTROPHOBIA IN THE PRISON POPULATION

To the Editor of THE LANCET

SIR,—The case of Thomas Parker emphasises once more a matter to which attention has often been directed in your columns. This man, destitute and obviously "known to the police," was given 14 days imprisonment for sleeping out. In prison he became unruly and violent, and because of this was sentenced to three days solitary confinement on bread and water. His state was by now what a witness at the inquest described as "frenzy" and on the way to the cell he precipitated himself down a flight of stone steps and killed himself.

On pages 106 and 107 of your current issue is a report of a discussion in the House of Commons, in which Brigadier-General Spears claimed that the man had suffered from claustrophobia. This claim was not denied by the Under-Secretary to the Home Office, who said that the prison officer has agreed that claustrophobia was a possible explanation of Parker's frenzy, though he had previously had no reason to suspect such a condition. In my student days I heard nothing from my teachers about phobias and associated conditions, though I recall an allusion to them in a text-book. I pictured them as stupid foibles of eccentric people who ought to have more sense, and I am not surprised that during 12 years of general practice no patient ever complained to me about such symptoms. Of the difficulties of diagnosis in this case I cannot judge—they may have been baffling even to an expert—but if any doctor, trained as I was, failed to recognise claustrophobia in a truculent frenzied man who shouted that he "must get out of gaol even if it were in a coffin" I could only ask what right we have to expect him to recognise it.

At this moment, however, when the teaching of psychopathology is striving for a place in the curriculum, Sir Francis Fremantle's presentation of the subject cannot pass unchallenged. If he had ever had the fortune—good or bad—to see the uncontrollable terror of a phobiac when subjected to his specific stimulus he would not make the mistake of linking phobias with "the objection of every prisoner to being shut in a cell" and declaring that "there was some claustrophobia in the case of every prisoner." I will go further and confidently make the deduction that he has never listened to a phobiac describing his symptoms. He says that one could not define (? diagnose) a claustrophobia "except by a general assessment of the individual's honesty in explaining his feelings, being able to analyse them himself, and to communicate them to the medical man examining him." These a priori diagnostics, with moral judgment as the criterion, prepare us for the statement, "It was extremely difficult to be sure of that condition in a person." With this I am, in a sense, in agreement. There is, of course, less intrinsic difficulty than in many other conditions which we are expected to be sure about, but if we omitted infectious diseases from our curriculum we might hear, concerning typhoid, that "It is extremely difficult to be sure of that condition in a person." Fear of great danger in bringing claustrophobia into legislation has one quality of a phobia, lack of rational foundation. Is claustrophobia in a prisoner to be regarded as something to be sternly ignored?

The Under-Secretary informs us that cases of this kind are not at all uncommon and extremely difficult to diagnose. Let me put it again plainly: these cases are difficult to diagnose *and understand* because few of us have been taught anything about them and diagnosis does not rest upon moral judgment but upon psychopathology. This unfortunate case may serve a good purpose if we are willing to learn our lesson from it.

I am, Sir, yours faithfully,

London, W., July 8th, 1933. MILLAIS CULPIN.

PNEUMODINE IN THE TREATMENT OF PULMONARY INFECTIONS

To the Editor of THE LANCET

SIR,—Various forms of iodine have been employed in the treatment of pulmonary infections and it would be reasonable to expect the best results from the use of volatile compounds of iodine which like creosote and allyl sulphide can be expired through the lungs. About seven years ago I began a chemical and clinical examination of a number of volatile iodine compounds, using them in cases of tuberculosis and comparing, for therapeutic effect and freedom from toxicity, the maximum dose of each which could be well tolerated by the mouth. I found that the allyl compounds, of which pneumodine (β-iodoethyl allyl ether) was selected as the most suitable for extensive trial, showed a therapeutic action too prompt and too definite to be confused with spontaneous improvement, and not to be attributed to environmental factors as most of the cases were treated under the conditions in which the disease had been progressing. Thus some of the cases who had previously been in a sanatorium without improvement or were retrogressing since their return home began suddenly to improve. Cough was relieved, sputum diminished in quantity, sickness due to toxæmia or bronchial irritation passed off in a few days, appetite improved, and night sweats subsided. Weight increased by as much as 1 to 3 lb., in two cases by 5 lb. in a week. In some of the febrile cases with the daily rise to 100° F., normal temperature was regained in three to four weeks. The immediate effect on toxæmia, felt by the patients as increase of vitality and lessening of fatigue, was followed by diminution in chest signs. In most of the comparatively early cases the signs in the chest and the symptoms of activity disappeared in two to six months. Some who resumed their usual occupation have remained in good health since. Good results were also obtained in some old-standing moderately advanced cases of the chronic afebrile type. In others a comfortable standard of health was reached and is being maintained with the continuous use of pneumodine.

In non-tuberculous pulmonary infections—lung abscess, bronchiectasis, whooping-cough, bronchitis, bronchial asthma, pneumonia—the action of pneumodine appeared to be even more prompt. For example, in a case of acute tracheo-bronchitis in a child of three, with a wiry pulse, resp. 60 per minute, temp. 101° F., with all the symptoms of pneumonia but with physical signs consisting only of harsh breathing over two lobes, after two doses of pneumodine emulsion the condition became normal. In a case of lobar pneumonia with definite consolidation of the left lower lobe in a man of 60, first seen two days after the onset, the temperature declined gradually and all the symptoms abated two days after starting treatment with pneumodine. In a case of bronchial asthma previously treated with expectorant mixture and ephedrine to relieve the difficulty of breathing, not only the cough and wheeziness but also the chest signs subsided in two days, and it was no longer necessary to use ephedrine. Two colleagues have recently reported to me similarly good results in bronchial asthma. Disappearance of sputum has also been obtained in cases of bronchiectasis. Pneumodine appeared to be particularly useful in cases of bronchitis of long duration.

Pneumodine is an unsaturated ethereal compound somewhat like allyl sulphide in its constitution and general characters, but with not nearly so unpleasant a smell. It is insoluble in water but freely soluble in fats and other organic substances. It is sufficiently stable to withstand the ordinary range of reactions within the gastro-intestinal tract, and is compatible with pot. iod., alkaline expectorant, and fever mixtures. In the tissues it hydrolyses rapidly with liberation of free hydroiodic acid. It is best given in the form of a petroleum emulsion or elixir. A palatable preparation, free from the smell of the iodine compound, and containing in each two fluid drachms 30 minims of liq. bismuth cit. and 1/10th grain of codeine phosphate is made by Messrs. Reynolds and Branson, Ltd., 13, Briggate, Leeds. Used in this way, pneumodine is well tolerated. In more than 70 cases of my own no iodism or other drawback has been encountered.

I am, Sir, yours faithfully,

Nottingham, June 23rd, 1933. G. CHAND, M.B., Ch.B.

SEASONAL GROWTH AND HUMAN HIBERNATION

To the Editor of THE LANCET

SIR,—Your annotation of July 1st deals with a hypothesis advanced, apparently in a general way, by A. B. Fitt, and recorded in the report of the Australasian Association for Advancement of Science for 1924, that certain seasonal changes or rhythms observable in the physiology of man are due to a former need for hibernation in our human ancestors when subjected to the winters of the glacial period—by which he meant the recent or Pleistocene glacial period, when man existed. Apart from the extracts and statements given in your annotation, I know nothing of this report and its contents; but I should like to point out the strong resemblance of the views described to the hypothesis first put forward by myself in April, 1924, and later published (January, 1931) in extended form in my book "Seasonal Variation in Man." But I have never suggested the possibility of *human* hibernation, which, unless the term is used in a loose sense, would be out of the question. My thesis is that the heat-stable mammal, given suitable physical conditions, annually goes through a vestigial cycle, which is the analogue of the old hibernating cycle imposed on earlier heat-labile types of mammal during and after their stages of differentiation. In the book in question this conception will be found methodically reasoned out, and further deduced for the pathological field, where it is shown capable of explaining the existence and characters of certain morbid events in ourselves, and of providing, among other things, the theory of tetany. Among the physiological consequences the expectation of an uplift in reproductive efficiency in March–April, which was confirmed by me for this district, and other facts commented on in your article, such as seasonal weight and growth curves and the reversal in date of such changes in the southern hemisphere, are shown to follow from the same central assumption.

Since my hypothesis appears to have so great an interpretative force in physiology and medicine, and since at its first introduction in book form it received inadequate notice, I have now in course of preparation a further short account of it. Meanwhile it is interesting to learn that a contemporary has arrived, though from a different line of approach, at a view having this much of identity with my own.

I am, Sir, yours faithfully,

Liverpool, July 6th, 1933. EDMUND HUGHES.

THE CAREY COOMBS MEMORIAL

To the Editor of THE LANCET

SIR,—Many of the friends and patients of the late Dr. Carey Coombs have expressed the desire of establishing, in his memory, some form of permanent memorial. With this object in view a committee of eight have been appointed, representing the Bristol University, the British Medical Association, Bristol Medico-Chirurgical Society, and the Bristol General Hospital.

We (the members of this committee) have decided to collect funds for the purpose of this memorial, and would offer an early opportunity of contributing to the same. We are satisfied that whatever sum is raised, it will be possible to invest it in such a way as to keep Dr. Carey Coombs' name in perpetual remembrance. We may be able to endow a research studentship (an object very dear to Dr. Carey Coombs's heart) or a lectureship, associated with the Bristol University. The income of this sum will be given to Mrs. Carey Coombs for the next five years towards the education of her children.

Promises of support or cheques should be sent to Dr. Elwin Harris, Jun., 13, Lansdown-place, Clifton, the cheques crossed "Coombs' Memorial." It would be of great assistance to us if intending contributors would indicate to us as quickly as possible their intentions.

We are, Sir, yours faithfully,

ERNEST W. HEY GROVES,
President, Bristol Medico-Chirurgical Society (Chairman).
CLARE SMITH,
Committee of the Bristol General Hospital.
EDWARD FAWCETT,
Dean of Medical Faculty, Bristol University.
C. E. K. HERAPATH,
British Medical Association and Bristol Royal Infirmary.
S. MARLE,
Bath Division of British Medical Association.
C. A. MOORE,
Bristol General Hospital.
J. A. NIXON,
Professor of Medicine, Bristol University.
H. ELWIN HARRIS, Jun.,
Bristol Medico-Chirurgical Society (Secretary).

Clifton, July, 1933.

PELLAGRA AND INTESTINAL INFECTIONS

To the Editor of THE LANCET

SIR,—Your annotation on Pellagra in Denmark (June 24th) interests me because of the statement in it that chronic gastro-intestinal disease contributes to the causation of pellagra by impairing the absorption of food. In 1931 I published a note in which it was shown that the incidence of pellagra was markedly greater in patients suffering from intestinal schistosomiasis. Of 173 cases of pellagra, 117 had this intestinal infection—i.e., 67 per cent. compared with a general percentage of intestinal schistosomiasis of 34·5. This fact was well illustrated in a family of three: father, son, and daughter. Father and son were suffering from pellagra and were infected with intestinal schistosomiasis, while the daughter was infected with urinary schistosomiasis and had no trace of pellagra. The three were living under the same conditions, taking the same diet with the only difference in their infection. Thirty-seven villages were investigated as regards the relation between pellagra and intestinal schistosomiasis. In most of them the incidence of pellagra followed the incidence of the intestinal infection. This also agrees with the fact that among the German prisoners of war in Egypt, 65 suffered from pellagra, and 63 of these were suffering from amœbic or bacillary dysentery.

I am, Sir, yours faithfully,

ASAAD FAKHRY, M.B. Cairo,
Medical Officer, Bilharzia and Ankylostoma
June 28th, 1933. Hospital, Damanhour, Egypt.

MEASURING A HEALING ULCER

To the Editor of THE LANCET

SIR,—I acknowledge the truth of Dr. Hill's correction; there is no logarithm of 0 and, theoretically, an ulcer should take for ever and a day before it heals. My point is that taking the logs of the areas at equal intervals of time, in practice we get a straight line, and the time when we may expect complete healing to have taken place is approximately when that line reaches the base line.

I am, Sir, yours faithfully,

Eastgate, Lincoln, July 8th, 1933. W. H. B. BROOK.

EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS

To the Editor of THE LANCET

SIR,—In his protest against the one-sided treatment of cancer work by exponents of experimental research Mr. Sampson Handley expressed an opinion long held by those who study cancer as it exists in human beings. Obviously the prime object of both laboratory and clinical workers is to find an explanation of the causes and nature of cancer in man. Directly or indirectly both are making for the same end. It so happens that the whole of our knowledge of the structure, symptoms, diagnosis, and treatment of the neoplasias of man comes from those who approach this subject by direct, clinical methods. To this extensive knowledge the contribution of laboratory experimentalists is practically nil, all that they have done being the addition of a few scraps tending to support or confirm the work of clinicians and pathologists. Such being the case it is by no means easy to understand why those who may be experts on the subject of tumours of the lower animals should be chosen as judges or as assessors of evidence bearing on the subject of the neoplasias in man. As a rule an assessor is appointed because of his success and because of his freedom from prejudice; but no one in the possession of his senses could claim either of these qualifications for the experimentalists. What, for example, could be more convincing of the reality of the prejudice of which Mr. Sampson Handley complains, than the difference in the reception given to a book published by a laboratory researcher and a book written on the clinical aspects of cancer investigation, as reviewed in some leading journal by an exponent of research. The former is lauded to the skies as the work of a genius, a brilliant achievement which will bring the writer undying fame, or words to that effect. The latter, though the outcome, it may be, of many years of hard work, and obviously deserving serious and judicial attention, meets with a very different reception. In one such instance known to me this reception was far from being chilly, as is often the case, for the reviewer, chancing to see some paragraph not so laudatory of research as it might be, "went for" the book after the manner of a bull who sees blood. So little was the book reviewed and so much was the animus shown against it that some of those who read the "review" wrote to the author of the book suggesting that the reviewer must have been carried away by some personal antipathy. But such an explanation is of course out of the question. That which looked like petty spite was amply to be accounted for by the laboratory environment and the special training of the research worker. These are not of a nature to qualify the possessor to act as a judge of any article or book needing a spacious outlook. However accomplished a man may be as a worker and authority on the tumours of mice in a laboratory it is too much to expect that he should be able to take large or correct views of the nature and causes of the neoplasias which afflict humanity.

To correct the anomaly against which Mr. Sampson Handley protests and which others have experienced, may I suggest that those who still pin their faith to experimental work on lower animals should rank as authorities on their special subject, and that all other branches of oncology should be regarded as coming within the province of those who study the neoplasias of man.

I am, Sir, yours faithfully,

Reading, July 10th, 1933. HASTINGS GILFORD.

ENLARGEMENT OF ANCOATS HOSPITAL.—Extensions to this hospital costing £70,000 are nearing completion. There will be a four-storey block with 15 beds in each ward, two private wards on each of three floors, and one private ward on another floor. There is a large lecture theatre, and the pathological department is greatly improved. It will be necessary to add 40 bedrooms to the nurses' home at a cost of £8000.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.—The foundation-stone of the new nurses' home, an imposing building in Guilford-street, of which the shell is already complete, was laid on July 7th by Princess Alice, Countess of Athlone, deputising for the Princess Royal. A group of children, chosen by ballot from among the young subscribers to the reconstruction fund, were on the platform and their names were inscribed on the stone. Lord Macmillan, chairman of the board of management, read a letter from the Princess Royal, who had worked as a nurse in the hospital during the war, deeply regretting that indisposition had prevented her visit. He said that it was considered only proper to start the process of rebuilding the hospital by making adequate provision for the nursing staff, who had hitherto suffered much inconvenience from lack of accommodation. Several nurses now had to share one room, but in future, when the new building was complete, each would have her own and would be able to lead a happy comfortable life in a charming home. The cost of this home was £70,000, of which £19,000 was still to seek. The nurses themselves had contributed £200, earning the money by doing jobs for each other. Sir Gerald du Maurier urged those present to induce their friends to raise money towards the completion of the reconstruction of the hospital, and Lady Galway spoke eloquently of the need for help. Princess Alice emphasised the fact that in the past far too little attention had been paid to the comfort of nurses. After Dr. F. J. Poynton, senior physician, and Mr. Tyrell Gray, senior surgeon, had thanked the Princess, she was conducted to view a typical bedroom and sister's sitting-room while the general company repaired to the hospital for tea.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Local Government Officers' Superannuation

IN the House of Commons on July 5th the Local Government and Other Officers' Superannuation (Temporary Provisions) Bill was considered on report. On Clause 3 (Determination of Questions arising under the Act), Sir HENRY JACKSON and Mr. ISAAC FOOT moved an amendment providing that disputes between parties as to whether a reduction in remuneration should be disregarded for the purposes of superannuation should be determined by the Minister, and not be referred to an arbitrator. He said that he thought they would get better uniformity than if the matters were dealt with by arbitration. Mr. SHAKESPEARE (Parliamentary Secretary to the Ministry of Health) said it would be far better to leave the clause as it stood, so that if the parties agreed the Minister would settle the case in dispute; but if they would prefer the appointment of an arbitrator that course could be adopted.

The amendment was withdrawn and the Bill was read the third time and passed.

Emergency Treatment of Road Accidents

Lord MOYNIHAN'S Road Traffic (Emergency Treatment) Bill was considered by a Select Committee of the House of Lords on July 6th. Lord IVEAGH presided.

Sir HENRY PIGGOTT (Deputy-Secretary, Ministry of Transport) giving evidence said that the Ministry was in sympathy with the general object of the measure, but the difficulty was to secure it without undesirable innovation in legal practice and without creating injustices in place of those which were removed. It ran against the established principles of jurisprudence to fasten on a man liability for which he might not be responsible. The witness thought that the liability imposed by the Bill was one against which the owner of the vehicle would have to insure under the Road Traffic Act.

Replying to Lord Moynihan the witness said that he saw no vital objection to an increase in the charge for a driving licence from 5*s.* to 7*s.* 6*d.* to form a fund out of which the hospitals and the doctors might be paid for emergency treatment. The fund would have to be administered by a board, but he did not see why its work should be expensive.

The committee adjourned.

Government Grants to Distressed Areas

On July 6th, on a vote of £440,000 for special grants to local authorities in distressed areas in England and Wales, Sir HILTON YOUNG (Minister of Health) said that the result of the long continuation of depression had been gradually to exhaust in the particular areas where the burden was heaviest, the resources or reserves which in ordinary times were available to cover any such increased expenses due to unemployment. The resources of the unemployed themselves and their families had been exhausted in the special areas. In addition, all those auxiliary resources of private help and charity, which were always such an invaluable background in our national life, had also been largely exhausted in those areas. The resources of the ratepayers in these areas had been diminished by the same causes as had operated against the reserves of the unemployed themselves. There were a certain number of authorities in the country who, owing to the increase of out-relief expenditure, were confronted with a very difficult situation which called for urgent and adequate relief during the coming year. The Government's scheme was a temporary one advanced simply to deal with the emergency of the present year. The permanent scheme would be introduced in the course of the present parliamentary session, but it could not be put forward in time to give the help that was required for the current year 1933-34.

The test whether an area was to receive a grant would be whether its expenditure on out-door relief was in excess of an equivalent of a 2*s.* rate for the area and the amount which a distressed area would receive would be in proportion to the amount of the excess expenditure on out-door relief over the amount which was equivalent to a 2*s.* rate. The average expenditure on out-door relief of all local authorities in the country as a whole was 1*s.* 3*d.* and the marginal 9*d.* above 1*s.* 3*d.* was thought a reasonable margin for two reasons: first, in order to secure that the relief available should go only to the most distressed areas; and second, because it was thought right that there should be some recognition of the responsibilities of local authorities for economy and good standards of administration.

Public Health Administration: Minister's Statement

BLOCK GRANTS

On July 7th, on a supplementary vote for the salaries and expenses of the Ministry of Health, Sir HILTON YOUNG said that the block grants to local authorities showed an increase of £195,000, due entirely to the new money which the House voted the other day for the second grant period in accordance with the original scheme under the Act of 1929. As a set off against that new money there were decreases of certain other grants owing to changes in the weighted population and alterations in boundaries. The actual vote for his department amounted to £19,000,000, a decrease of £135,800. The principal increase was an increase in housing grants of about £250,000. That amount would have been very much greater had it not been for the fact that Parliament had decreased the Wheatley subsidies, and all subsidies except those for slum clearance and rural reconditioning. As against the housing increase there was a decrease of £375,000 on the health insurance vote, due principally to the Act of 1932. It was also due to the fact that in 1932 the House had to vote £120,000 in respect of the influenza epidemic. As that epidemic had not recurred the expenditure on that head had not been necessary this year. There was a small decrease of £2800 in respect of the administration of his department. This was the result of a very big effort, because the staff of the Ministry of Health was constantly increasing on account of the expanding health services.

STERILISATION OF THE UNFIT

This, said Sir HILTON YOUNG, was a difficult problem. The Committee knew how enormous was the expense of the mental deficiency service; but more important was the great gravity of the disadvantage in our national life of mental deficiency. They also knew how uncertain was the public mind on the question of sterilisation. They had started an inquiry which would enable them to ascertain the facts, and he hoped that the committee undertaking the inquiry would be able to report before very long. The inquiry was not to pronounce on the question of policy. Only the House of Commons could do that when the nation's mind was more made up than it was at the present time. But the committee of inquiry would place the facts before the country in order that it might come to a sound judgment on this vital matter.

REFUSE DUMPS

Another matter in regard to which they had to look ahead was the accumulation of great masses of refuse round the great cities, London in particular. These refuse dumps were potential sources of danger to public health. He had set up a new consultative committee of the Corporation of London and the

28 borough councils to coördinate their interests to those of the localities where the refuse dumps were situated. As a result of this effort he hoped to see a great improvement in the future.

HOUSING

Last and most important in the work of planning and foresight was the actual work of town and country planning. The Act passed last year had given a great impetus to that work, and it was being pushed forward as rapidly as possible by the influence of the Ministry. The returns from local authorities in the principal urban areas showed that for the first five months of this year there had been a very substantial increase in the actual number of building plans passed. Last year the value of the plans passed during the first five months was £26,000,000, but this year the figure had gone up to £34,000,000. At present there was no diminution in the rate of construction of assisted houses. They were in a most interesting and critical period of the campaign against slums. He was encouraged by the spirit in which the work was being taken up by the local authorities, and he believed that the work was going well.

EFFECT OF DEPRESSION ON HEALTH

He thought they would expect to see the depressed condition of the country beginning to tell upon the health of the people. Certainly a Minister of Health must be on the alert for symptoms of that. In what he had to say he was not pretending that the people of the country were well off, and that all was for the best in this world. It was not: there was deprivation and nearness to the margin of life, due to bad times throughout the country, and all the distress which was caused thereby. But what he wanted to look at was the actual physical effect as shown in the statistics.

As the result of a widespread and close inquiry which he had been carrying on as to the state of the nation's health as a result of the depression it had been made quite clear that unemployment was undoubtedly telling upon the mental state of the unemployed, and producing states of mind which were unhealthy.

As to the physical health of the nation the Ministry of Health had, of course, sources of information far wider than could be available in any other inquiry. In 1932 the death-rate of the whole country was 12 per 1000, equal to the average rate from 1921 to 1930, and it had been steadily declining up to the present time. There was a very remarkable and most encouraging decrease in the death-rate among children. That was the proudest achievement of our health services in the last half century. Since 1910 the infant mortality-rate had been halved, a marvellous achievement for the new welfare services conducted with so much efficiency by the local authorities and the medical profession throughout the country. He found no evidence of increased morbidity in the country as a whole. In the case of such diseases as pneumonia and bronchitis the morbidity statistics were going down. But most important of all as a barometer of health and nutrition was tuberculosis, and there the figures showed that the death-rate per 1,000,000 from tuberculosis in all forms fell in 1932 to 838 from 896 in 1931. There was a particularly marked fall in the incidence and mortality from non-pulmonary tuberculosis, which was the child's particular form of the disease.

MATERNAL MORTALITY

But while the statistics of infant mortality might be their pride those of maternal mortality were undoubtedly a matter for dissatisfaction. Certainly the Ministry was not content with them. The maternal mortality-rate last year was 4·11, and this year it was 4·21. The first part of the work in dealing with this situation must be the better education of the mother and of the midwife. In the meantime they were continuing the constant pressure on local authorities to raise the standard of the maternity services. He was delighted to know that the number of infant welfare centres was increasing, and that the antenatal clinics were conspicuously increasing. They had increased by 250 between 1931 and 1933.

MALNUTRITION

He had seen all the reports of medical officers of health and regional medical officers on the actual state of the physical health of the country and of the unemployed in special relation to the question of malnutrition. A general summary of those reports was that the health of the country was normal in spite of the depression. He had good reports in particular from London, Lancashire, Birmingham, Liverpool, and the North Riding of Yorkshire.

There was one matter which deserved the attention of the local authorities. When they were looking for a place in the family where malnutrition would show itself as a result of unemployment and depression they should look at the woman. It was beyond the power of any man to prevent a mother depriving herself for the sake of her children, and this placed upon them a responsibility in such times as the present to watch the health of the mothers of the country.

Views of Medical Members

Sir FRANCIS FREMANTLE appealed to the Ministry to bring town planning more into line with housing: proper planning for the part of a town associated with slum clearance should be insisted on before any clearance scheme was embarked on. He thought it mistaken policy for pensioners who had exhausted their rights under the National Health Insurance scheme to be obliged to leave their panel doctor and to go to a poor-law doctor; was it not possible, he asked, to fuse the two schemes in the provision of medical benefit? Surely one medical man should be able to look after the interests of all the members of one family. He went on to ask for signs of the promised coöperation between voluntary and other hospitals under the Act of 1929. In some places things were working well, especially where membership of the local authority was largely the same as that of the agencies running the voluntary hospitals, but he hoped pressure would be brought to bear elsewhere to make coöperation effective. He alluded to a feeling of grievance in the nursing profession: nurses who moved from a voluntary to a municipal hospital or vice versa now lost their pension rights. He deprecated the compartment system under which a local authority had different sets of officials to manage the various branches of the health services. He would like the Ministry to urge on the General Medical Council the fact that in medical training far too much attention was being paid to the treatment of disease and far too little to its prevention. Outside the medical profession the enormous value of physical education was being increasingly appreciated, and he wanted the Ministry to give more consideration to the positive side of health promotion.

Dr. O'DONOVAN said it was fitting for a practising physician to say how much the medical profession appreciated the selfless devotion to duty over many years of Sir George Newman. He could not agree with Sir Francis that practising doctors were not concerned with preventive medicine. The Minister of Health would not be where he was but for years of persuasion and agitation on the part of the clinical profession. The whole practice of medicine, in fact, was soaked in prevention, and when the two branches of medicine came to realise that they had but one aim and one object the friction between them would cease. He spoke of the increase in the number of hospital beds as an indication of the failure of hospitals to conserve health, and pointed to the development of out-patient departments staffed by highly trained physicians as an object more worthy of the Minister's care. The infant welfare centres arising in abundance were only 90 per cent. efficient; they served as nets for sorting out the sick and the fit, difficult cases when they arose being sent to voluntary hospitals for diagnosis and treatment. Here again the consultants of London and other great urban centres were adding the touch of efficiency which made these centres worth while. As there was a whole army carrying on the public services in connexion with the preventive side of medicine, he did not think that welfare centres could claim as their own the whole of the great drop in child mortality. Finally, he expressed the hope that medical officers of health would be given facilities for going freely to professional meetings and discussing matters that affected the public health with the clinicians who were as closely concerned.

LAPSE OF MEDICAL BENEFIT.

Replying later to points raised in debate, Mr. Shakespeare (Parliamentary Secretary to the Ministry of Health) said that having looked into the facts again in regard to those people who would fall out of medical benefit in December he was convinced that they had been exceptionally generously treated. He thought that the case made on their behalf did not stand investigation. The Health Insurance Fund was self-supporting, but, if that fund was to be debauched, as the Unemployment Insurance Fund had been debauched, then the whole structure would be undermined. These men, or some of them, in the extreme cases, had been kept in insurance since 1920. Every year since that date they had been entitled to cash benefits and to all the rights of an ordinary insured person, yet they had not paid one penny in contributions. In other words, they had had 13 years free insurance as regarded sickness benefits, they would have 14 years' free insurance as regarded medical benefits, and 2 years more as regarded pensions. Surely these men had been generously treated. It was said that it was hard on the doctors to lose 80,000 panel patients, but every year there were 150,000 new persons coming on to the panel. But if the question was only one of the choice of doctor, and a local authority submitted some sort of system whereby the district medical officers who were also panel practitioners might attend these men and the men have choice of doctors, then he was sure that the Minister of Health would consider it.

Bills Dropped.

Among the private members' Bills which have been dropped by their promoters are the Nurses Registration Act (1919) Amendment Bill and the Registration and Regulation of Osteopaths Bill.

HOUSE OF COMMONS

THURSDAY, JULY 6TH

Casuals: Sleeping Arrangements

Mr. Price asked the Minister of Health whether he was aware that thousands of casuals were locked up each night in solitary cells from 6 P.M. to 6 A.M.; and whether he would make an order that the doors of sleeping cells should be left unlocked.—Sir E. Hilton Young replied: No, Sir. All the information available goes to show that it is not now the normal rule to lock cubicles at night. It would, however, be impracticable, and in my opinion undesirable, to make a rule that in no circumstances should cubicles be kept locked.

Discharges from Mental Hospitals

Mr. John asked the Minister of Health whether, in view of the annual increase of 1900 in the mental hospital population and the resulting strain on accommodation, he would request the Board of Control, in compliance with the recommendation of the Royal Commission, to compile and circulate a pamphlet setting forth the rights of the public in matters of which they were now ignorant, notably the right to apply under Section 79 to the visiting committee for the discharge of patients to the care of friends.—Sir E. Hilton Young replied: I am not satisfied that it is necessary to prepare the pamphlet suggested. The situation as regards Section 79 has already been met by the existing rule which requires the managers of every institution, on the admission of every rate-aided person, to send a notice embodying the substance of that section to all persons who are named as relatives or friends of the patient in the statement of particulars accompanying the reception order.

Glucose in Jam

Captain Balfour asked the Minister of Health upon what grounds his department was opposed to the inclusion of glucose in jam; and in what particulars glucose fell short of the accepted standards for foodstuffs.—Sir E. Hilton Young replied: I am advised that there is no public health objection to the use of pure glucose as a foodstuff. It is, however, generally considered that jam is better made with cane sugar and that if made with glucose it is not so good. My view is, therefore, that notice of any such substitution should be given to the purchaser.

MONDAY, JULY 10TH

Milk and Cream Prices

Captain Peter Macdonald asked the Minister of Agriculture how the average prices of milk and cream in this country had been affected by the recent restrictions on foreign imported process milk.—Major Elliot replied: The arrangements governing the imports of processed milks were made in order to avoid a market collapse, to provide room for large and increasing stocks in the hands of home manufacturers, and to enable manufacturers to keep their processing plants in operation. I understand that these objects have very generally been achieved, and while it is not possible to estimate the effect on the prices of milk and cream, the arrangements are having a marked effect in supporting the liquid milk market at a time when it is at its weakest owing to the seasonal peak of production.

Dental Treatment by Education Authorities

Captain Heilgers asked the Parliamentary Secretary to the Board of Education whether he would consider advising authorities to institute a voluntary contributory scheme, on the lines of the hospital contributory schemes, for all dental treatment supplied by the education authorities.—Mr. Herwald Ramsbotham replied: My noble friend is considering proposals on the lines indicated which have been submitted to him on behalf of one local education authority. But he is bound to have regard to the existing statutory position under which local education authorities are required to make arrangements for dental treatment subject to a charge in those cases, and in those cases only, in which treatment is actually provided; and he feels some doubt whether the proposals will be found to be consistent with that position.

TUESDAY, JULY 11TH

Air Ambulance Service in Scotland

Mr. Kirkwood asked the Secretary of State for Scotland what were the practical difficulties in the way of organising an air-ambulance service for the conveyance of urgent medical and surgical cases to the hospitals and infirmaries in Glasgow; and whether he would make arrangements to enable an aeroplane to be hired in case of urgent need.—Mr. Skelton (Under-Secretary of State for Scotland) replied: The extent to which aeroplanes could be used for the conveyance of medical and surgical cases in the Highlands and Islands area is limited in the first place by the fact that suitable landing places are not available in many of the islands, and except in fine weather conditions the maintenance of an aeroplane or seaplane service may not at all times be practicable. In the second place any arrangements that might be made with a company or organisation for the maintenance of an air-ambulance service would require to include the reservation of a number of aeroplanes for use on requisition, but the uncertainty as to whether, owing to the unfavourable conditions which I have mentioned, these aeroplanes could in fact be used on any given occasion would make the payment of a subsidy for the maintenance of the service a somewhat doubtful use of public money. The policy of the Department of Health in the administration of the Highlands and Islands (Medical Service) Fund has been to encourage the development of a local hospital service with skilled surgeons for the treatment of both urgent and other cases. If, however, pending the development of such a local service in any district it were found that the practical difficulties in the way of maintaining an air-ambulance service would be overcome, my right hon. friend would be very glad to coöperate with any organisation who would undertake the local arrangements for the transport of urgent cases by aeroplane or seaplane to the nearest available hospital.

Temperature in Mines

Mr. TINKER asked the Secretary for Mines if his attention had been drawn to the high temperature prevailing in some of the mines, and that the men working in them suffered in health in consequence of the heat and were unable to work the full time the colliery was open for employment; and if he would have inquiries made with a view of putting in the forthcoming Mines Bill what the maximum temperature should be for the men to work in.—Mr. ERNEST BROWN replied: No representations have been made to me, but the very difficult problem of reducing the high wet bulb temperatures which naturally exist in some of the deeper mine workings is constantly being dealt with by the managers of such workings and the inspectors. I am advised that while work under such conditions is fatiguing it is not usually a cause of ill-health. The deep mining of coal in this country must necessarily extend in years to come, and for this reason the development of ameliorative measures is being continuously studied, both in its medical and practical aspects, by the Hot and Deep Mines Committee which coöperate with the Safety in Mines Research Board.

Voluntary Patients in Mental Hospitals

Mr. TURTON asked the Minister of Health how many cases had been brought to his notice during the last 12 months of voluntary patients being lodged in the same ward or room in a mental institution, hospital, nursing home, or place approved by the Board of Control, under Section 1 of the Mental Treatment Act, 1930, as certified patients; and whether he would circularise local authorities and other persons in charge of such institutions, hospitals, or places, regarding the undesirability of such an arrangement.—Mr. SHAKESPEARE (Parliamentary Secretary to the Ministry of Health) replied: One case has been brought to the notice of my right hon. friend in which this matter was the subject of complaint. That case was investigated, and it did not appear that there was any substantial ground for complaint. The classification of mental patients has to be based mainly on their condition and symptoms, and it is not necessarily desirable to provide separate accommodation for voluntary patients, even if it were possible to do so in the present stage of shortage of bed accommodation. My right hon. friend is advised that the present arrangements are generally as satisfactory as is practicable in the circumstances, and the number of voluntary patients is steadily increasing. He does not think it would be advisable to adopt the suggestion in the last part of the question.

WESTMORLAND SANATORIUM.—At this sanatorium and home for consumptives at Meathop, Grange-over-Sands, a new pavilion for 20 patients costing £4000, has been erected to take the place of two-bedded "pagoda" shelters, and has been opened by Dr. W. L. Paget-Tomlinson, the president. The pavilion, which is of stone and faces almost due south, has double and single wards and a full-length verandah. Most of the beds are rented by various northern local authorities which pay £110 per annum per bed.

WRIGHTINGTON NON-PULMONARY TUBERCULOSIS HOSPITAL.—Sir George Newman recently opened this institution of the Lancashire county council. Its core is Wrightington Hall, near Wigan, which was purchased some years ago for £16,500. Its adaptation and the erection of pavilions have cost a further £114,720—£621 per bed, towards which the Ministry of Health has contributed £180. There is accommodation in five one-storey pavilions and an isolation block for 126 adults and 100 children. The buildings stand in beautiful grounds 300 feet above sea-level: the hall itself provides for most of the nursing staff.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdrs. to be Surg. Capts.: G. G. Vickery, J. H. Burdett, W. Bradbury, and E. MacEwan.

Surg. Lts. (D) to be Surg. Lt.-Comdrs. (D): H. A. Ginn, G. B. F. Reece, H. V. Pell, and L. V. Donegan.

The following appointments are notified: Surg. Capts. J. H. Burdett to *Victory* for Haslar Hospital, and C. V. Griffiths to *President* as Deputy to Medical Director-General of the Navy.

Surg. Comdr. F. G. Hunt to *Pembroke* for Chatham Hospital.

Surg. Lt.-Comdrs. E. T. S. Rudd to *Achilles*, J. V. Williams to *Pembroke* for Chatham Barracks, and G. Rorison to *Pembroke* for Chatham Barracks.

Surg. Lts. H. J. Bennett to *Sandhurst* and P. N. Taylor-Walker to *Dorsetshire*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Comdr. T. B. Dixon to be Surg. Capt.

Surg. Lt.-Comdrs. F. L. Cassidi and S. W. Davidson to be Surg. Comdrs.

ROYAL ARMY MEDICAL CORPS

Maj. E. A. Tozer relinquishes his temp. commn. and retains the rank of Maj.

Lt. W. A. Y. Knight to be Capt.

TERRITORIAL ARMY

Col. P. H. Mitchiner, K.H.S., from unemployed list, to comd. 13th (4th Lond.) Gen. Hosp.

Lt.-Col. and Bt. Col. J. Wallace retires on completion of tenure of appt. and retains his rank, with permission to wear the precribed uniform.

Capt. and Bt. Maj. D. Ross to be Maj.

Capt. P. Hayes, from T.A. Res. of Off. (Gen. List, R.A.M.C.), to be Capt.

Lts. D. A. McM. Crawford, F. W. Crook, and F. W. A. Warren to be Capts.

D. M. Mitchell to be Lt.

Supernumerary for service with O.T.C.: Lt. J. R. Wheeler resigns his commn.

INDIAN MEDICAL SERVICE

Lt.-Col. C. I. Brierley, C.I.E., to be Col.

ROYAL AIR FORCE

Flying Officer O. M. Fraser is promoted to the rank of Flight Lt.

RESERVE OF AIR FORCE OFFICERS

Flight Lt. (Hon. Squadron Leader) T. M. Walker is employed with the Regular Air Force for a further year.

AUXILIARY AIR FORCE

D. A. Smith is granted a commission as Flying Officer No. 607 (County of Durham) (Bomber) Squadron.

COLONIAL MEDICAL SERVICE

In Northern Rhodesia Dr. H. S. de Boer, Deputy Director of Sanitary Services, has been appointed Deputy Director of Medical Services; and Dr. A. Kinghorn, Deputy Director of Medical Services, Director of Medical Services. Dr. E. C. Smith has been promoted to Senior Pathologist, Nigeria.

INDEX TO "THE LANCET," VOL. I., 1933

THE Index and Title-page to Vol. I. 1933, which was completed with the issue of June 24th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

University of Aberdeen

On July 5th the honorary degree of LL.D. was conferred on W. J. Mayo, chief of staff of the Mayo Clinic, Rochester, U.S.A.

The following degrees were also conferred :—

M.D.—*J. B. Ewen, *D. C. Robb, *R. D. Stuart, *Robert Sutherland, J. A. Dawson, R. H. G. H. Denham, and R. G. Henderson.

*Awarded Commendation for Thesis.

M.B., Ch.B.—†I. A. Anderson (with First-class Honours); A. M. Rennie and J. R. S. Third (with Second-class Honours); G. W. F. Anderson, R. G. S. Bain, F. J. S. Bowman, J. A. Cameron, Charles Cockburn, H. D. Collins, C. A. Cromar, R. A. Cumming, W. J. L. Dean, William Hay, G. R. E. Kerr, James Ledingham, †G. P. Merson, M. McL. M. Morrison, H. F. Park, J. F. Philip, P. C. Wallace, and J. C. Wilson.

† Passed Final Medical Professional Examination with Distinction.

D.P.H.—S. A. B. Black, A. R. Forrest, J. S. B. Mackay, G. D. McKenzie, J. D. Trail, J. S. Walker, and James Webster.

University of Bristol

On the occasion of the centenary celebrations of the University of Bristol the following honorary degrees were conferred: *LL.D.*—Lord Dawson of Penn, Sir Holburt Waring, Sir Norman Walker, and Sir Frank Colyer. *D.Sc.*—Emeritus Professor E. W. Hey Groves. *M.D.*—Prof. Miles H. Phillips. Prof. G. Elliot Smith, Prof. A. V. Hill, and Prof. R. Muir, who were unable to be present at the ceremony, will have honorary degrees conferred upon them at a later date.

Miss D. M. Stone, M.D., has been appointed junior pathologist in the department of preventive medicine.

A Medical Tour of German Spas

At the invitation of a group of German spas a number of members of the medical profession will be visiting Germany at the beginning of August. The tour will last about ten days and the itinerary will include Bad Nauheim, Bad Wildungen, and a trip on the Rhine. The visitors will become guests of the spas when they reach the German border. Particulars may be had from Mr. Robert O. Rohme, 90, Sheaveshill-avenue, Colindale, London, N.W.9, who is making the arrangements.

Medical Oarsmen

One of the events at the St. Dunstan's regatta, which was held on July 12th at Putney, was a race between a four of old blues and a crew of men blinded in the war. The old blues four, which was gathered together by Mr. Malcolm Donaldson, F.R.C.S., was to consist of himself, Sir Harold Gillies, F.R.C.S., Dr. J. S. Burn, and Dr. E. N. Showell-Rogers, with Dr. R. Knox as cox. Dr. Knox was in the Oxford boat in 1925, but it is stated that none of the others has done any rowing for 25 years.

Royal College of Surgeons of England

Election to the Council.—On July 6th five Fellows were elected into the council to fill the vacancies occasioned by the retirement in rotation of Lord Moynihan, Sir John Lynn-Thomas, Mr. A. H. Burgess, and Mr. V. Warren Low, and by the death of Sir Percy Sargent. The result of the poll was as follows :—

	Votes.	Plumpers.
Sir Charles Gordon-Watson	785	29
Arthur Henry Burgess	773	12
Henry Sessions Souttar	579	24
Reginald Cheyne Elmslie	553	8
Leonard Ralph Braithwaite	547	28
Charles Max Page	527	8
Claude Howard Stanley Frankau	444	24
Cyril Alfred Rankin Nitch	439	4
Duncan Campbell Lloyd Fitzwilliams	415	27
Alfred William Sheen	384	3

In all 1420 Fellows voted, including 253 Fellows resident out of Great Britain and Ireland; in addition, 8 votes were found to be invalid. Mr. Braithwaite becomes substitute member of council for Lord Moynihan until 1935. Mr. Elmslie becomes substitute member of council for the late Sir Percy Sargent until 1938. Sir Charles Gordon-Watson, Mr. Burgess, and Mr. Souttar are elected for the full period of eight years.

International League against Rheumatism

The fourth congress of the Ligue Internationale Contre le Rhumatisme will take place at Moscow from May 3rd to 6th, 1934. The following subjects are to be treated: rheumatic fever in its different expressions; the indications for balneotherapy in different forms of rheumatism; and rheumatic morbid conditions in transport-workers, mine-workers, and metal-workers. During the congress there will be an exhibition, and afterwards members will be enabled to visit the different sanatoria and spas in the Caucasus and on the Black Sea. For further information apply to the Bureau of the Ligue, Keizersgracht 489, Amsterdam.

Society for Relief of Widows and Orphans of Medical Men

At a quarterly court of directors, held on July 5th, Dr. W. H. Kelson, a vice-president, being in the chair, half-yearly grants to widows and orphans to the amount of £1430 were voted from ordinary funds and £600 from the Brickwell fund, as well as special grants of £129 18*s.*, making a total of £2159 18*s.* At the present time there are 52 widows and 5 orphans in receipt of relief. The death was reported of a widow who came on the funds in 1904 and had received in relief £2100; her late husband had paid in subscriptions £52 10*s.* Membership is open to any registered medical man who at the time of his election is residing within a 20-mile radius of Charing Cross. Relief is granted only to the necessitous widows and orphans of deceased members of the society. Full particulars from the secretary at the offices of the society, 11, Chandos-street, London, W.1.

Papworth Village Settlement

A large meeting of the supporters of the Papworth Settlement was held on Thursday, July 6th, at the Park Lane Hotel under the chairmanship of the Earl of Harewood. A satisfactory year's work was recorded, and Lord Harewood was able to state that the institution was benefiting more patients than ever before and finding employment for more tuberculous subjects than any similar institution, while he added that no child born in Papworth had as yet developed tuberculosis as far as the records had been ascertainable. It was announced that Mr. Baldwin, Sir Louis Baron, and Mr. Warwick Deeping had been elected vice-presidents of the Settlement, as a fitting acknowledgement of their generous assistance. For Mr. Baldwin's broadcast speech on behalf of the Settlement had produced directly and indirectly a very large sum of money, Sir Louis Baron and his co-trustees were giving £20,000 in five yearly instalments towards the erection of the new Bernhard Baron Memorial Hospital, while Mr. Warwick Deeping, who had described Papworth village in one of his novels, had given to the Settlement a share of royalties which had already produced nearly £1000. In seconding the adoption of the report an excellent speech was made by Dame Agnes Hunt, when describing the plight of the convalescent tuberculous employee, who cannot secure re-engagement by his firm because of the attitude of the other workmen. The public fear she described as fatal to the future of these unfortunate cases, and formed a powerful argument for the immediate foundation of settlements on Papworth lines where tuberculous subjects could have medical supervision and could earn their livelihood with self-respect and help to support the sheltering institution. Lady Linlithgow, in thanking Lord Harewood for presiding, alluded to the strong personal interest which had been taken by the Royal Family in the welfare of Papworth, and suggested that as the company was meeting on the fortieth anniversary of the wedding of the King and Queen a telegram of loyal congratulations should be sent to them from the meeting. This being unanimously agreed to, the vote of thanks was seconded by Sir Pendrill Varrier-Jones, who spoke optimistically of the work that lay ahead of the Settlement and of the general movement for instituting similar settlements as money was forthcoming, for the problem of the care of the tuberculous was, he maintained, largely an economical one. At the close of the meeting a short film was presented showing how life is spent at Papworth.

Elizabeth Garrett Anderson Hospital

Last week Lady Kindersley opened a new pathological department at this hospital. It has been reconstructed from an old building given some time ago to the institution.

The National Institute for the Deaf

The annual meeting of supporters of the institute was held on Thursday, July 6th, at Church House, Westminster, Lord Charnwood, the president, being in the chair. Speaking to the annual report the chairman pointed out that at last their work was receiving Government recognition, the issue by the Ministry of Health of a sympathetic circular leading to the hope that the plight of the victims of deafness would in the near future receive consideration as their difficulties became known. A research, put in hand by the medical committee of the institute, had led, he said, to definite improvements in electrical aids, under which not only many subjects could be assisted, but scientific methods may be arrived at for the cultivation of residual deafness, an infliction which is still met by haphazard methods. The report having been adopted a resolution was passed by the meeting welcoming the action already taken by the Ministry of Health and asking the Government to set up a permanent advisory committee to watch over the interests of the deaf as is done in the case of the blind.

Construction and Maintenance of Institutions

Sir Hilton Young, the Minister of Health, has appointed a Departmental Committee whose terms of reference are :—

> To consider and report on the questions of the capital cost of construction and the annual cost of maintenance of the following classes of public buildings provided by local authorities—viz., hospitals (including mental hospitals), public assistance institutions, mental deficiency institutions, maternity homes (including maternity departments newly constructed or added to hospitals) and baths and wash-houses, special regard being paid to (*a*) the establishment and periodic revision of standards ; (*b*) modern methods of construction ; and (*c*) the possibility of securing a reduction in present costs without impairing the efficiency of the buildings for the purposes for which they are designed.

The committee is appointed in pursuance of a recommendation made by the Committee on Local Expenditure in their report of October, 1932, and in accordance with the announcement made in the Minister's Circular 1311 of March 22nd, 1933. The chairman is Sir L. Amherst Selby-Bigge, and the members Mr. J. Allcock, F.I.M.T.A., Mr. N. B. Batterbury, Mr. H. W. Bruce, F.R.C.S., Mr. R. C. Cox, M.Inst.C.E., Dr. J. Ferguson, Mr. J. Kirkland, F.R.I.B.A., Dr. T. S. McIntosh, Mr. R. H. P. Orde, Mr. L. G. Pearson, F.R.I.B.A., Mr. A. Scott, F.R.I.B.A., and Dr. W. Rees Thomas. The secretary will be Mr. J. Topping, of the Ministry of Health, to whom communications should be addressed.

International Society of Orthopædic Surgery

As has already been announced, the second congress of this society will be held from July 19th–22nd at the house of the Royal Society of Medicine, 1, Wimpole-street, London, W. The president, Prof. Nové-Josserand (Lyons) will receive members at the Langham Hotel, Portland-place, at 9 P.M., on July 19th, and on the next morning will give an address on the Orientation of Orthopædics. This will be followed by a discussion on the mechanism of articular movements in general, to be opened by Prof. H. von Bayer (Heidelberg), Prof. F. Delitala (Venice), Dr. R. Scherb (Zurich), and Prof. E. Kopits (Budapest). On July 21st in the morning the treatment of tuberculous hip disease will be discussed. The opening speeches will be given by Prof. J. Erlacher (Graz), Prof. A. Maffei (Brussels), Dr. M. S. Henderson (director of orthopædic surgery at the Mayo Clinic, Rochester), and Prof. E. Sorrel (Strasbourg), followed by Prof. J. Hass (Vienna), Dr. M. Inclan (Havana), and Prof. Nové-Josserand and Prof. L. Bérard (Lyons). On July 22nd short papers will be read by Dr. Willis Campbell (Memphis, Tennessee), Dr. Lasserre (Bordeaux), Dr. Lorenz Böhler (Vienna), Prof. A. Steindler (Iowa), Dr. Minar (Ljubljana), Dr. W. Stern (Cleveland), and Dr. Valls (Buenos Ayres). The afternoons will be devoted to demonstrations of operations in various hospital theatres. An extensive social programme has been arranged, including a banquet at the Dorchester Hotel, Park-lane, on July 21st.

The Star and Garter Home for Disabled Sailors and Soldiers

At the end of 1932 there were 238 patients, of whom 179 were at Richmond and the remainder at Sandgate ; there is still a waiting-list. The average weekly cost per patient was £3 8*s*. 9*d*. The Ministry of Pensions grant was £15,767 ; legacies produced £3297, and donations and subscriptions £461, a small increase.

Birmingham Convalescent Home

On July 1st Sir Charles Hyde formally opened the Birmingham Hospital Saturday Fund's new convalescent home for women at Kewstoke, Weston-super-Mare. The building, which has cost £60,000 and has 100 beds, is the seventh convalescent home belonging to the fund. It occupies a commanding position at the end of the beautiful Kewstoke Woods, overlooking Sand Bay, two miles from Weston. Last year 6113 patients passed through the Fund's convalescent homes. Recently 415 women subscribers were waiting for admission while only 44 could be taken weekly. The opening of the new home will increase the weekly total by 50.

West London Medico-Chirurgical Society

Dr. Julius Burnford presided at the annual banquet held at the Trocadero Restaurant on July 6th. The Dean of St. Paul's, proposing the toast of the Society, gratefully contrasted the excellent fare provided with the menu of cod-liver oil, rice with the husks on, lemon juice with lettuce, with lumps of fat as a final course, which might have been expected at a gathering of progressive doctors. His comparison between the birth-rate and death-rate in India with those of this country led him to prophesy a distressing outlook for the medical profession here, since their patients would neither be born nor die. The President, in reply, recalled the names of the men who founded and supported the society 30 years ago, notably C. R. B. Keetley, H. Percy Dunn, Phineas Abraham. The subjects chosen by the Cavendish lecturers of the society year by year showed a perception of the large issues that medicine would be called upon to face, often long in advance of professional opinion elsewhere. Dr. W. S. C. Copeman, senior secretary, proposed the Guests, making graceful allusion to their distinction in various fields. Lord Justice Slesser in reply suggested that the misunderstanding which sometimes arose between the medical and legal professions might be due to the fact that lawyers worked down from general to particular, whereas doctors worked up from particular to general. Sir Holburt Waring, another guest, spoke of the pioneer work in post-graduate education undertaken at the West London Hospital, and expressed his conviction that there was room in London for more than two post-graduate schools. Mr. B. A. Levinson proposed the health of the President, who briefly replied.

Births, Marriages, and Deaths

BIRTHS

BOSTON.—On July 5th, at St. Mark's House, Regent's Park-road, N.W., the wife of F. K. Boston, M.B., of a son.

COLDREY.—On July 7th, at Chatham House, Rotherham, the wife of Eric Coldrey, M.D. Lond., F.R.C.S. Eng., of a son.

SACKS.—On July 9th, at Mapesbury-road, N.W., the wife (M. E. Landau, M.D., F.R.C.S.) of Dr. S. Sacks, of a son.

MARRIAGES

GREEN—HINDE.—On July 8th, at Holy Trinity Church, Street, Somerset, Francis H. K. Green, M.D., M.R.C.P., to Elsie Joyce, only daughter of Mr. and Mrs. Karl Hinde, of Rosewood-street, Somerset.

LANE—KINGSTON.—On July 8th, at St. Mary's Church, Dover, Sydney C. H. Lane, M.B., B.S., M.R.C.S., of Deal, to Gladys Margaret, daughter of the late Mr. and Mrs. C. R. Kingston, of Bombay.

DEATHS

GIBBS.—On July 7th, at St. Mawes, Alfred Napier Godby Gibbs, M.R.C.S., L.R.C.P. Lond., Honorary Consulting Surgeon to the Bristol Eye Hospital.

STEVENSON.—On July 2nd, at his home, Ford House, Churchinford, Chard, Somerset, William Dymes Stevenson, M.R.C.S., Physician and Surgeon, aged 72.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Reunion in Rome. The journal, *Mental Hygiene*, has now become a regular publication appearing twice yearly, although the cost of producing it has more than once come from private pockets. The council hope to turn it into a quarterly and to publish in it not only the usual series of public lectures but also the papers read at the biennial conferences. The mental hygiene lectures during the year under review were exceptionally popular, and the council also, in coöperation with the British Social Hygiene Council, gave some very successful film lectures on marriage problems and sex education. The council has achieved its ambition of extending its work to the provinces, and stands have been taken at various health exhibitions and lectures given at a number of centres. A panel of lecturers has been drawn up, and application for them may be made by any society interested. Another new departure of the council is the formation of a small library, free to members; this is at present housed in the Institute of Medical Psychology.

DAIRY CATTLE AND DAIRY PRODUCT

AN inquiry into the composition of milk as produced under conditions characteristic of the South of England has been made at the National Institute for Research in Dairying, Reading, and is described in the annual report.

The following figures were collected over a period of four complete years from a typical herd of nine shorthorn cows: interval between calvings, 13 months; lactation period, 280 days; yield of milk, 9047 lb. per cow; butter fat, 3·9 per cent.; solids-not-fat, 8·9 per cent. The butter fat in the morning's milking on 13·7 per cent. of occasions fell below 3 per cent., whilst the lowest sample ever recorded in the evening's milking was 3·6 per cent.

For two years data have been collected from six counties—Berkshire, Buckingham, Dorset, Hampshire, Northampton, and Oxford—on the causes of removal of cows from dairy herds, covering over 13,000 animals in all. The average productive life of a cow from these statistics appears to be four years. The percentage of the various causes of disposal or death of cows is as follows: sterility, 25·9; low milk yield, 17·7; tuberculosis, Johne's disease and "wasting," 12·3; trade, 14·1; udder troubles, 6·5; tuberculin test, 5·5; miscellaneous causes (calving troubles, &c.), 4·8; sundry disease (pneumonia, &c.), 4·5; old age, 4; abortion, 2·9; accidents (injuries), 1·8.

Traces of heavy metals in dairy products.—It has been shown at the institute that traces of copper and iron, which may be taken up by milk during the various processing methods, often have a pernicious influence on the flavour of the milk or milk products. If the Cu exceeds 1·5 parts per 1,000,000, an oily taint will rapidly develop in the milk, and its keeping qualities will be diminished. Butter or dried milk may suffer similarly from traces of Cu. Cu is the most potent of the metals tested, Fe, Mn, Ni, and Cr have a lesser influence, while Sn and Al appear to have no deleterious effect either on flavour or on keeping qualities.

Variations in vitamin content of milk.—Seasonal variations in the vitamin content of the milk of the typical herd have been investigated.

The year was divided into three periods in which the animals were fed under different conditions: (1) spring and summer (pasture) feeding; (2) autumn (intermediate) feeding; and (3) winter (stall) feeding. It was found that both vitamins A and D showed a marked rise in summer and autumn, the curve for D having a sharper peak and falling more rapidly in autumn than that for A. The determination of vitamin A by the chemical ($SbCl_3$) test is interfered with by an unidentified substance present in butter which also undergoes a marked seasonal variation, but may be removed by previous saponification of the butter. The D factor in butter behaves differently from other antirachitic substances (irradiated ergosterol and cod-liver oil) in being apparently, destroyed by saponification of the butter.

The importance of *milk control schemes* and a bonus system by payment according to the quality of the raw milk is shown by the very great improvement in the results when the two systems work together. In 1927, for example, in one series of farms only 14 per cent. of the milk reached Certified and 38·5 per cent. reached Grade A standards. In 1932, after these systems had been in force, the figures had risen to 65 per cent. and 94·8 per cent. respectively. The same is true of pasteurised milk also—e.g., in one case an average keeping quality of the bottled product of 5·3 units (1 unit = 6 hours at 60° F.) was raised after two months' supervision to 10·2 units.

The viability of the bovine tubercle bacillus in soil and dung exposed on a bare pasture to full sunlight has been studied. Organisms recovered from these pastures proved virulent to guinea-pigs (by inoculation) even after exposure for six months in 1931, a cold wet summer, and for five months in 1932, when spells of great heat were experienced. Growing grass, infected by spraying through the fine nozzle of a watering-can, remain infective when tested in the same way for at least 49 days even after a rainfall of 6½ inches. But guinea-pigs kept in the open, and actually feeding on the heavily infected grass, failed to develop tuberculosis even after 13 months.

IDENTIFICATION BY THE TEETH

IT is recorded that when the body of Charles the Bold was found after the battle of Nancy, divested of his clothes and armour, it was unrecognisable but was identified by the fact that he had lost some of his lower front teeth. Since then there have been many instances of identification by teeth or their absence. The classical example in the story of crime is that of Parkman and Webster in 1849. Webster forgot that a platinum and gold denture would withstand the heat of the furnace in which he burned his victim. The dental school of Santiago owes its foundation to the gratitude of the Chilean government for the discovery of a dentist who proved that a murdered body was not that of his patient, the consul of a great European power. Mr. B. H. Humble reviews these and other historical instances of identification by means of teeth in the *British Dental Journal* of May 15th, and declares his belief that this method will become of increasing importance. Sometimes the thoughtless burglar takes a bite out of some convenient piece of food and omits to erase his toothmarks with the care which he would naturally apply to his finger-prints. Mr. Humble illustrates a piece of cheese which secured the conviction of a burglar at Cumberland Assizes in Carlisle in 1906. Other criminals bite their victims, and the dental impression thus left may be a means of identification long after the victim's death. In several criminal cases on the continent the dental evidence has been material in securing conviction. It seems very doubtful, however, whether the law of this country would allow the prosecution to take a dental impression from an accused person. Mr. Humble points out that the number of people receiving dental treatment is steadily increasing. Already about one-fifth of all elementary school-children pass through the dentist's hands and over 12 million insured persons in Great Britain are now eligible for dental benefit. Many dentists keep accurate records, and under insurance and school dental schemes these records are compulsory. There must, therefore, in the future be a steadily increasing number of people who could be identified by their teeth. In London during 1927 there were 74 dead bodies which remained unidentified, and this number is about the average. Mr. Humble suggests that a dental surgeon should be called in to such cases, and the complete description of the teeth should then be published in dental journals in the hope that identification may be made by a dentist. A description of this kind was recently published in the *Zeitschrift für Stomatologie*, and a writer in that journal has suggested that each dentist should be given a personal stamp so that his prosthetic work could be immediately recognised.

ADDRESSES AND ORIGINAL ARTICLES

PROBLEMS OF SPINAL ANÆSTHESIA

By Charles A. Pannett, M.D. Lond.,
F.R.C.S. Eng.
SURGEON TO ST. MARY'S HOSPITAL; PROFESSOR OF SURGERY IN THE UNIVERSITY OF LONDON

Spinal anæsthesia lacks the absolute dependability of inhalation narcosis. Two uncertainties dominate the situation: the extent of the anæsthetic field produced, and the magnitude of the fall of blood pressure. This paper is concerned with the problems of the control of the upward spread of the anæsthetic agent and the maintenance of an adequate blood-supply to the brain.

Despite the recommendation of le Filliâtre and Koster that this method should be employed for operations upon the head and neck, and the demonstration in animals that the direct application of novocain to the floor of the fourth ventricle may be quite harmless,[1] an observation strikingly confirmed by other observers,[2 3] few surgeons can regard an anæsthesia which ascends higher than the clavicles as anything but perilous. Indeed it does not seem wise to aim at loss of sensation higher than the nipples, an anæsthesia which will allow any abdominal manipulation to be carried out painlessly except traction on the cardiac end of the stomach, the sensation felt in this case being due to sensory fibres in the vagus or dragging on the diaphragm supplied from the fourth cervical nerve. Though it is possible to obtain complete anæsthesia without respiratory paralysis both in man and animals, the exact conditions necessary for this, and the safeguards which must be observed, are not fully known and it is better, with our present knowledge, to avoid the risk of the anæsthetic spreading up above the middle of the dorsal region and thereby incurring the risk of paralysing the upper intercostal muscles and diaphragm.

Spread of an Intrathecal Injection

There are four means by which an injected substance may spread beyond the point of puncture of the thecal space. They are: (1) diffusion; (2) gravity; (3) volumetric displacement; (4) mechanical commotion.

Diffusion is so slow a process, a matter of weeks at least for it to be effective, that it can obviously play no part and may therefore be eliminated. Before considering the other three factors it is pertinent to ask whether their influence may be affected by circulation of the cerebro-spinal fluid or by anæsthetic acquisitiveness or other property of the nervous tissue. There is no active circulation of cerebro-spinal fluid to be demonstrated in a laminectomised animal.[4] The cerebro-spinal fluid flows in a sluggish, almost imperceptible stream. A dye injected locally remains for long at the site of injection. But the conditions of the experiment are important. The dura must be intact, and a fairly extensive removal of laminæ, for observation, must be carried out.

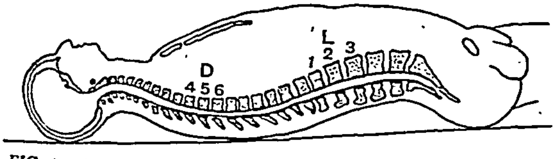


FIG. 1.—Diagram showing the flow of solutions as far as the dorsal region, with patient in the head-down position.

Gravity.—There is not the slightest doubt, as Barker[5] so ably demonstrated, that gravity can play a quite important part in the movement of the injected drug. Because of its high specific gravity I recommended[4] in 1929 the use of a 10 per cent. solution of novocain. I still use it with very satisfactory results. With a patient in a slight head-down position a heavy solution will naturally flow to the cavity of the dorsal spine, as Fig. 1 shows, to a position which is quite high enough to abolish the pain impulses travelling along the splanchnic nerves. Yet experience makes it abundantly clear that gravity is not the sole and perhaps not the most important means of spread. Compliance with all the obvious conditions will not ensure the drug reaching the desired height, and, on the other hand, will not inevitably prevent the drug from travelling higher than the force of gravity would lead us to expect, while solutions of the same specific gravity as the cerebro-spinal fluid will spread with apparent ease, but not always with certainty. The passage of the anæsthetic solution in response to gravity may be checked possibly by the cord lying in contact with the posterior aspect of the dural sac. Anatomically, at about the twelfth dorsal vertebra, the spinal cord, from being in contact with the anterior wall of the spinal canal, passes backwards to lie on the posterior surface, where the strands of the cauda equina remain.[6] The injection is thus ordinarily made anterior to the cord and has to pass round it as it ascends. It also has to negotiate the obstructions offered by the ligamenta denticulata and the nerve-roots.

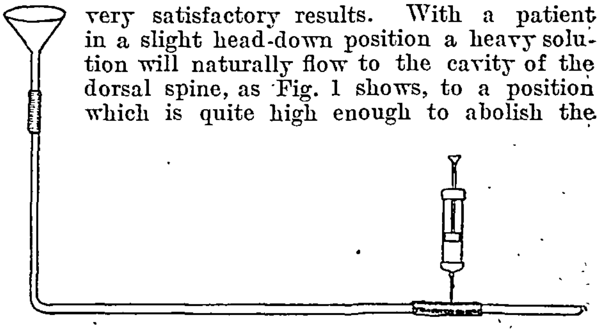


FIG. 2.—Apparatus demonstrating volumetric displacement.

Volumetric displacement.—This can best be explained by reference to a simple laboratory experiment which I described in a paper some time ago.[7] If an injection of dye is made in the apparatus filled with fluid shown in Fig. 2 it will be found that the dye will travel only towards the left where fluid can be displaced up the angled tube. Do these conditions apply to the human spinal canal? They would if: (1) the dural sac were inextensible, and (2) if the extradural intraspinal pressure were always less than the intrathecal pressure so that the dural sac in transverse section would assume its maximum area, that is, be a true circle. In the paper referred to I assumed these two conditions, for I had found that the dural sac was very tough in a specimen of cord and membranes which I excised intact, post mortem, and I accepted the statement of Heldt and Moloney[8] that the pressure outside the dural sac is very slight and indeed is a negative one. Subsequent dissection has led me to modify my views about the extensibility of the dural sac; it is not always strong and inelastic. Also, a little consideration will show that there cannot be a uniform pressure in the extradural intraspinal interval, for this space is occupied by fatty tissue, veins, and arteries. It is impossible to measure the pressure within adipose tissue with the needle of a manometer. The pressure registered by Heldt and Moloney in their researches was most likely the venous pressure. Hence it does not follow, as I believed, that the injection of a volume of fluid sufficient to reach up to the mid-dorsal region is the secret of right disposal of the anæsthetic agent. Nevertheless, clinically a great measure of success follows the injection of 20 c.cm. of 1 per cent. novocain without withdrawal of cerebro-spinal fluid, and I have used it many times. This is the method employed by Howard Jones in his percaine injection.

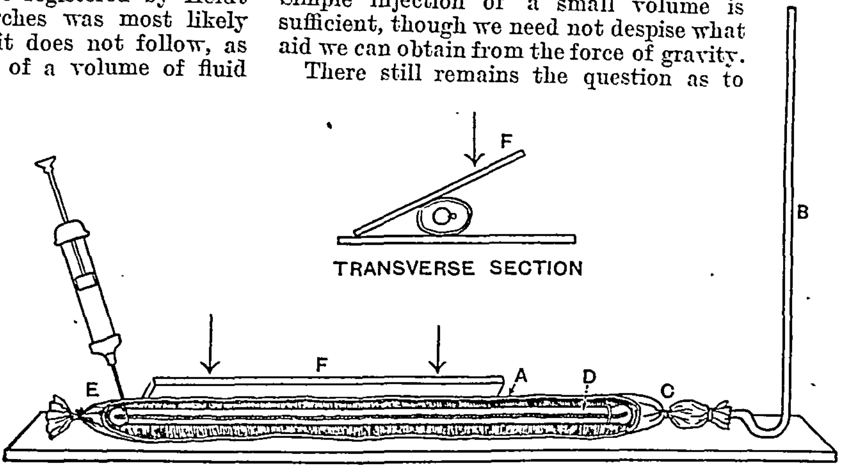


FIG. 3.—Apparatus demonstrating mechanical commotion (described in text).

Mechanical commotion.—When a lamina is removed from the spinal cord of an animal, or man for the matter of that, it is very striking to watch the pulsations in the extradural fatty tissue synchronous with the heart. When the spine is intact, since the bony wall is rigid, this pulsation must, with a wave-like movement, rhythmically compress the spinal theca. Cerebro-spinal fluid will perhaps be displaced upwards into the skull cavity; possibly, and more likely, one part of the sac is compressed whilst a neighbouring part is expanded. At first sight it does not seem clear that the movement would lead to spread of an injected fluid, but the following experiment makes it almost certain that it does. (Fig. 3.)

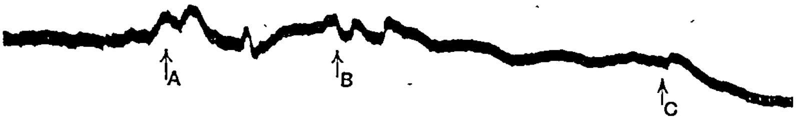


FIG. 4.—Blood-pressure tracing of cat under urethane anæsthesia. A, left splanchnics divided. B, right splanchnics divided. In each case rises of pressure on traction of nerves during division. Small ultimate fall of blood pressure. C, injection of 0·4 c.cm. of 5 per cent. novocain intrathecally. Note further fall of blood pressure.

(A) is a thin-walled rubber tube filled with water to a pressure of 10 cm. of water measured by manometer (B). The tube representing the dural sac was then closed by ligating it at (C). (D) is a solid glass rod representing the cord, along the whole length of which is stretched a piece of thick silk. An injection of 1 c.cm. of methylene-blue was then made at (E). After ten minutes the dye as shown by the staining of the silk, had spread, largely as the result of gravity, for 6 cm. from the site of injection. The same experiment was done with this difference, that light pulsations about 80 per minute were given by a piece of wood (F) arranged on a hinge attached along one of its sides. After this the dye had spread in the sac over the same period of time for no less than 23 cm.

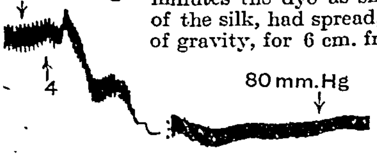


FIG. 5.—Typical fall of blood pressure on injecting at 4 0·2 c.cm. of 5 per cent. novocain intrathecally in the cat.

On repetition the result was always in the same direction, and came as a great surprise to me because, as I have said, I had already noted that after spinal exposure in a rabbit spread was extremely slow. When the bony wall is intact, however, physical conditions are quite different and I believe that this mechanical commotion is the most important factor in the spread of the anæsthetic. Barbotage, withdrawal of cerebro-spinal fluid, and the injection of much volume of liquid are all unnecessary, and should be discarded except perhaps in special circumstances. Simple injection of a small volume is sufficient, though we need not despise what aid we can obtain from the force of gravity.

There still remains the question as to which conditions are favourable to good spread of the anæsthetic solution and which betoken failure, but of this I cannot speak with confidence. When, however, the blood pressure is high and the cerebro-spinal pressure low, a not uncommon event, the spread of the anæsthetic always seems to be good; and in one patient in whom, by injection of 10 c.cm. of an innocuous solution into the theca, I raised the cerebro-spinal pressure from 10 cm. to 18 cm. of water, the subsequent injection of novocain did not spread upwards. Perhaps the spinal manometer can give us a clue to the likelihood of good upward spread.

There is no reason why mechanical commotion should not make the anæsthetic agent travel right up to the skull. The patient is protected from this by the neurotropic power of the nervous tissue which fixes the novocain, rendering the solution progressively weaker the further it ascends. This is why the height to which the anæsthetic ascends depends so much upon the dose administered, and why, below a certain concentration, an injection of novocain is ineffective.

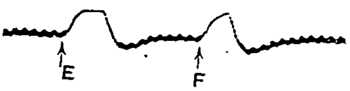


FIG. 6.—Same experiment as Fig. 5. Rise of blood pressure of 10–12 mm. Hg on raising lower part of cat at E and F.

The Fall of Blood Pressure

There is usually a fall of blood pressure after a spinal anæsthetic, the degree of which is impossible to foretell but seems to depend to some extent upon the height to which the anæsthesia ascends. The fall, which obviously brings elements of danger with it, has usually been ascribed to the blocking of the splanchnic nerves. But although the volume of the spleen and kidneys is increased after splanchnic section, the pale, contracted, bloodless condition of the intestines is familiar to every surgeon who operates under this form [illegible] hesia. The researches of Wright and Kremer [9] have shown that this fall is sometimes quite small and never very large. This experiment can easily be confirmed (Fig. 4). A typical fall of blood pressure after spinal injection of novocain in a cat is shown in Fig. 5. After division of both splanchnics, which may produce a very small fall of pressure, a subsequent injection of novocain intrathecally always produces a very considerable drop (Fig. 4). We are therefore driven to conclude that it is the paralysis of vasomotor nerves to other parts of the body which plays the decisive rôle. The blood flow through muscular tissue has a very great range of variability. I suggest therefore that it is the dilatation of the vessels in the trunk and leg muscles which is an important factor in the drop of general blood pressure.

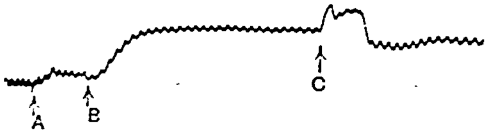


FIG. 7.—Same experiment as Fig. 5. Left vagus cut at A; right vagus cut at B; lower part of cat raised at C.

It is only right to state that another view has been put forward to account for the fall in blood pressure. Severs and Waters [10] attribute it specially to loss of inspiratory suction into the heart. The flow to the heart can be increased by raising the lower part of the body, and this will raise the blood pressure, as is demonstrated in Fig. 6. This passive reserve response is important to bear in mind, but the Trendelenburg position is not really the best way of utilising it. Lowering the head too much will impede the return flow of blood from brain to heart. The logical way of utilising this knowledge is to raise slightly the recumbent abdomen and limbs above the level of the heart.

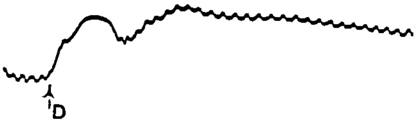


FIG. 8.—Same experiment as Fig. 5. Still further rise of 30 mm. Hg on stimulating central end of left vagus after double vagotomy.

That there is still more capacity for active response in the raising of the blood pressure in spinal anæsthesia is well demonstrated by Figs. 7 and 8, which are a continuation of the same experiment. Double vagotomy, by increasing cardiac action, causes very considerable elevation of pressure, an elevation which is again increased by raising the lower part of the animal. What is yet more remarkable is the further rise of 30 mm. Hg resulting from the stimulation of the central end of the left vagus. This result suggested the possible efficacy of an injection of atropine as a remedial measure. I have not, however, in the cat (in one experiment) obtained any experimental support for this and cannot recommend it. Some increase in blood pressure is still obtainable under spinal anæsthesia by the stimulation of sensory nerves whose conduction is unaffected. This is shown in Fig. 9, the effect of faradisation of the ear. In Figs. 10 and 11 we see the response to stimulation of other afferent nerves, and Fig. 11 also demonstrates how, under urethane anæsthesia (under which all these experiments were done), it can be demonstrated that the lower part of the body is under the influence of the spinal anæsthetic. No response whatever is obtained from stimulation of the sciatic. These two tracings also show that an increase in the respiratory excursions accompanies the stimulation of afferent nerves. How far this in itself, by its suction effect, is responsible I am unable to say. The great response from the nasal mucosa led me to try the experiment of making a patient under a spinal anæsthetic inhale ammonia. It raised his blood pressure 12 mm. of Hg, and he asserted that it made him feel more comfortable.

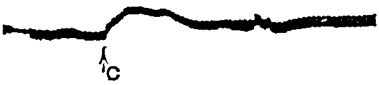


FIG. 9.—Blood-pressure tracing of cat. Pressure fell from 140 mm. Hg to 100 mm. Hg on intrathecal injection of novocain. Faradic stimulation of ear at C.

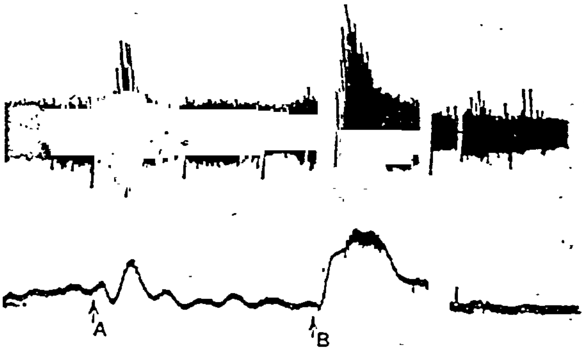


FIG. 10.—Blood-pressure and respiratory tracings of rabbit after intrathecal injection of novocain. Primary fall of blood pressure 50 mm. Hg A, stimulation of brachial plexus; B, stimulation of nasal mucosa.

The use of ephedrine for maintaining the blood pressure is recommended by some anæsthetists and condemned by others. Most conflicting accounts of its effects are given. That it can, in the experimental animal, raise the blood pressure above its original level is demonstrated by the tracing in Fig. 12. Clinically I must confess to finding it very unreliable, and I am not convinced of the wisdom of its use. We must always remember that our primary object is not the raising of the blood pressure but the maintenance of an adequate supply of blood to the brain. Physiologists are abandoning the view that the vessels of the brain have no sympathetic vasomotor supply. Especially has this subject been elucidated by Forbes, Wolff, and Cobb.[11 12] According to them, stimulation of the peripheral end of the sympathetic will cause the pial vessels to constrict, while stimulation of the central end of the vagus will cause them to dilate. Adrenaline injected into the circulation also caused

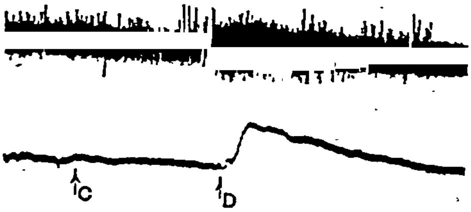


FIG. 11.—Same experiment as Fig. 10. Stimulation of sciatic at C produces no change; stimulation of nasal mucosa at D causes a rise.

a constriction. It is therefore possible that the injection of ephedrine, by eliminating the natural reflexes owing to its peripheral action, might lead to a diminution rather than an increase in the flow of blood through the brain. An interesting observation was made by Severs and Waters. They found that blood pressure supported artificially by ephedrine falls immediately, with a relatively slight degree of anoxæmia. We thus get experimental support for the practice of administering oxygen during a spinal anæsthesia.

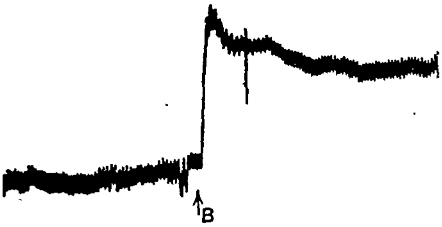


FIG. 12.—Rise of blood pressure in cat under spinal anæsthesia on injecting 10 mg. ephedrine intravenously at B.

Conclusions

(1) The distribution of an anæsthetic agent injected into the spinal canal is largely influenced by the pulsation of the extradural spinal vessels.

(2) A concentrated solution of drug is advisable because gravity can assist in its distribution and the height to which the anæsthesia will spread depends upon the strength of the solution.

(3) The fall of blood pressure in spinal anæsthesia is due largely to dilatation of vessels in the muscles of the affected area of the body.

(4) The body can respond to the stimulation of unblocked sensory nerves by raising the blood pressure.

(5) The respiratory excursion is probably an important factor in the maintenance of an adequate supply of blood to the brain.

(6) As remedial measures for the circulatory depression of spinal anæsthesia are recommended the raising of the lower part of the body, but not the lowering of the head ; the inhalation of oxygen and the inhalation of dilute ammonia. The injection of ephedrine or adrenaline is not recommended.

The researches embodied in the above paper were carried out in the inoculation department of St. Mary's Hospital. They were made possible by the hospitality offered by Sir Almroth Wright, to whom I offer my most grateful thanks, as also to Dr. John Freeman for permission to conduct the experiments in his own laboratory.

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BUCCAL CANCER AND ITS TREATMENT BY RADIUM

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This paper embodies our experience with the use of radium in the mouth over a period of seven years, and we hope that it may prove of value to others dealing with the disease. The subject is dealt with under three heads : (*a*) some physical aspects of radium therapy, (*b*) clinical details of treatment, and (*c*) results.

Physical Aspects of Radium Therapy

UNIT OF DOSAGE

Milligramme-hour.—This is a unit of dosage very largely used ; it has no real meaning in radiotherapy, *since it gives no indication of the dose applied to any* particular tissue or tumour. The unit indicates the quantity of radium used and the time.

Millicurie destroyed.—This unit puts the previous one on a slightly more scientific basis in which the radio-active changes act as their own clock. It gives no indication of the distribution of the dosage and is only a measure of the quantity of active agent employed and destroyed.

Energy unit.—J. Murdoch has adopted Dauvillier's proposal to express the actual energy absorbed in one cubic centimetre of tissue or tumour. The dosage unit is represented as ergs/cm^3, while the intensity unit is expressed as ergs/cm^3-hour. From many points of view this is an ideal unit, but so far no practical method of measuring it has been devised.

"*r unit.*"—This is the international unit of X radiation ; it is based upon ionometric observations *and is defined as the amount of X radiation (falling* on one cubic centimetre of standard air) which separates one electrostatic unit of quantity of electricity under certain conditions of measurement.

Intensity unit.—None of the above units is convenient for calculating the intensity of radiation in the neighbourhood of needles and applicators. The natural method is to consider the intensity of radiation at one centimetre from a point source of 1 mg. of radium. Such a unit can be converted into "energy units" or "r units" by making the necessary experimental measurements, but is quite independent of the accuracy of such experimental work. *The radiation at any point can be found by* applying the "inverse square law," while the radiation from a number of sources is assumed to be additive. In order to limit the unit to gamma radiation it is assumed that the radium is screened by 0·5 mm. of platinum. For purposes of convenience of calculation such a unit is termed the gamma unit, while the unit of dosage becomes the gamma-hour.

LETHAL DOSE

According to Souttar the lethal dose for sensitive cancer cells in vivo is one millicurie at 0·5 cm. distance ; this is equivalent to 4 × 133·3 mg.-hours at 1 cm. distance, or 533 γ-hours. On the other hand Spear gives the lethal dose (continuous) in vitro as—

300 mg. of radium at 0·5 cm. distance for six hours, or
1200 „ „ „ 1 „ „ „ „ „

which is equivalent to 7200 γ-hours. According to the same author, by suitably splitting the dose into a series of short doses the total lethal dose in vitro is reduced to 1200 γ-hours.

INTERSTITIAL IRRADIATION

The interstitial irradiation of a tongue tumour is carried out by placing 1 mg. needles uniformly round the growth at a distance of 1 cm. from it.

Considering a sphere, the periphery of which extends 1 cm. beyond the tumour, the number of needles to be inserted is obtained by squaring the diameter of the sphere and dividing by two. This method has given good results over a period of ten years. The intensity at the centre of the tumour is calculated by applying the "inverse square law." Neglecting absorption in the tissue, each needle produces an intensity of $\frac{1}{R^2}$, where R is the radius of the sphere. As there are $2 \times R^2$ needles the total intensity at the centre is $\frac{2R^2}{R^2}$ or 2 γ-units and is thus independent of the size of the sphere.

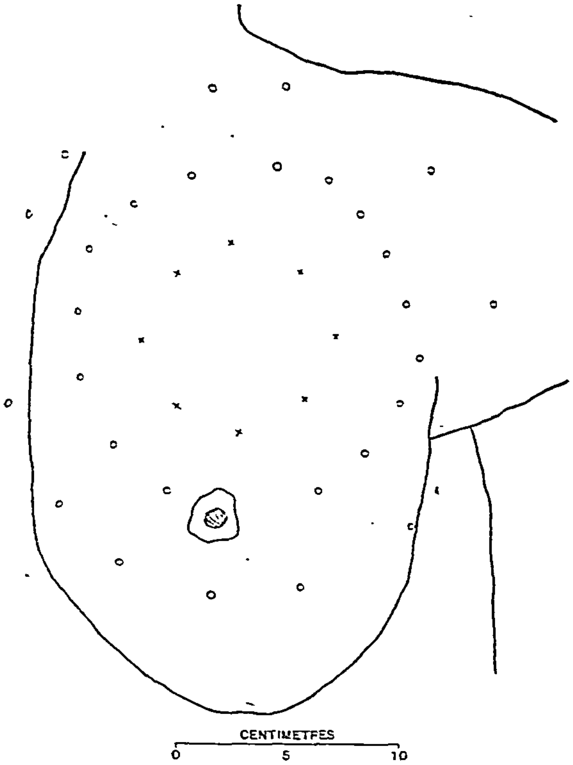

FIG. 1.—The arrangement of the radium needles for the irradiation of a typical breast tumour is shown. The crosses represent the punctures due to 2 mg. needles, while the circles represent the punctures due to 3 mg. needles.

All tumours do not lend themselves to such simple treatment; in breast cases, for instance, it is preferable to place the needles on the peripheries of a number of spheres in order to obtain a more even irradiation. Fig. 1 indicates the arrangement of the needles, as shown by the skin punctures, in a typical breast tumour. The figure does not show the precise positions of the needles on account of the curvature of the breast. Actually eight 2 mg. needles (44 mm. long) and twenty-eight 3 mg. needles (60 mm. long) are disposed on three concentric spheres having radii of 4, 8, and 12 cm. respectively and having their centres coincident with the centre of the tumour. The radium is arranged so that the smallest sphere produces an intensity of 1 at the centre, the intermediate one produces $\frac{3}{4}\gamma$ and the largest sphere produces an intensity of $\frac{1}{4}\gamma$ at the centre, the effect of absorption being neglected in all cases. It follows that the quantity of radium required to produce this result is $(4)^2$, $\frac{3}{4} \times (8)^2$ and $\frac{1}{4} \times (12)^2$ mg., respectively. Table I. indicates the arrangement:—

TABLE I

Radius of sphere.	Quantity of radium.	Needles employed.
4 cm.	16 mg.	Eight 2-mg.
8 ,,	48 ,,	Sixteen 3-mg.
12 ,,	36 ,,	Twelve 3-mg.

ABSORPTION

In order to compare the intensity produced in a tongue tumour with that produced in a breast tumour the effect of absorption must be considered. This is the subject of a special investigation, but preliminary results indicate that the following (Table II.) can be taken as approximately correct:—

TABLE II

A. = Radius of sphere on which radium is placed.
B. = Percentage of calculated intensity at centre of sphere.

A.	B.	A.	B.
2 cm.	93	8 cm.	75
4 ,,	86	10 ,,	70
6 ,,	80	12 ,,	65

Applying these corrections to a typical tongue case in which the radium is placed on a sphere of 2 cm. radius, the intensity at the centre is $2 \times 0{\cdot}93 = 1{\cdot}86\,\gamma$. As the optimum reaction is obtained in about 200 hours, the dose received at the centre is 372 γ-hours. In the case of the breast tumour quoted the effect is as follows (Table III.):—

TABLE III

Radius of sphere.	Calculated intensity at centre.	Corrected intensity.
4 cm.	$1\,\gamma$	$0{\cdot}86\,\gamma$
8 ,,	$\frac{3}{4}\,\gamma$	$0{\cdot}54\,\gamma$
12 ,,	$\frac{1}{4}\,\gamma$	$0{\cdot}16\,\gamma$
	Total	$1{\cdot}56\,\gamma$

In this case the radium was allowed to remain in position for 231 hours, so that the dose received at the centre of the tumour was 360 γ-hours, which is of the same order as that received by a typical tongue tumour.

EXTERNAL IRRADIATION

Screenage.—It is probable that, within limits, increasing the screenage of the radium used in gamma-ray applicators improves the efficiency, and the equivalent of 1 mm. of platinum has been adopted as the total screenage for such applicators.

Thickness.—The greater the thickness of the applicator, or the distance between the radium and the skin, the greater is the ratio between the tumour and the skin doses. As a compromise between efficiency and convenience a thickness of 3 cm. has been adopted.

Arrangement of radium.—The radium is arranged on an applicator to give uniform irradiation over the skin; this may be done in a number of ways. In the case of a flat circular applicator the distribution of the radium on concentric circles suggests itself as one of the simplest methods. The intensity produced at any point due to the uniform arrangement of radium on a circle is given by the following formula:—

$$\text{Intensity} = \frac{\text{Milligrammes of radium}}{\left[(r^2+d^2+a^2+2ra)(r^2+d^2+a^2-2ra)\right]^{\frac{1}{2}}}$$

where r = radius of circle on which radium is distributed.
d = distance from plane of circle.
a = distance of point from the central axis.

Fig. 2 shows a series of curves obtained by the use of this formula. Each curve represents the intensity variation in the plane of the skin—i.e., d=3 cm. The intensities are plotted against radial distance from the central axis. For convenience these curves are drawn so that the maximum intensity is unity, but this is not essential. They relate to circles having radii ranging from zero (corresponding to a point source of radium) to 15 cm. In the Figure the curves are marked as follows:—

$$\left.\begin{array}{l}\text{X}\\\text{A}\\\text{B}\\\text{C}\\\text{D}\\\text{E}\\\text{F}\end{array}\right\}\begin{array}{c}\text{The radium}\\\text{is placed}\end{array}\left\{\begin{array}{l}\text{at a point source.}\\\text{on a circle 4 cm. radius.}\\\text{,,}\quad\text{,,}\quad 6\ \text{,,}\quad\text{,,}\\\text{,,}\quad\text{,,}\quad 8\ \text{,,}\quad\text{,,}\\\text{,,}\quad\text{,,}\quad 10\ \text{,,}\quad\text{,,}\\\text{,,}\quad\text{,,}\quad 12\ \text{,,}\quad\text{,,}\\\text{,,}\quad\text{,,}\quad 15\ \text{,,}\quad\text{,,}\end{array}\right.$$

Circular applicators are built up by placing a suitable quantity of radium at the centre and also equally distributing it on one or more of the above circles, the object being to obtain a uniform intensity in the plane of the skin. For convenience of calculation an intensity of 1 γ unit is aimed at and an accuracy of ± 5 per cent. is considered satisfactory. The method is to assume an intensity of 1 γ at a number of points on the radius of the applicator. One of these points will always be at the centre of the applicator and the number of other points taken will correspond to the number of circles on which it is proposed to place radium. The position of these points is chosen so that together with the central point they will represent equal areas. This condition is satisfied at the following distances from the centre:—

For—

$$\left.\begin{array}{l}1\ \text{point}\\2\ \text{points}\\3\ \ \text{,,}\\4\ \ \text{,,}\end{array}\right\}\begin{array}{c}\text{and}\\\text{the}\\\text{centre}\end{array}\left\{\begin{array}{r}\sqrt{3/4}r\\\sqrt{5/6}r\ \sqrt{3/6}r\\\sqrt{7/8}r\ \sqrt{5/8}r\ \sqrt{3/8}r\\\sqrt{9/10}r\ \ \sqrt{7/10}r\ \ \sqrt{5/10}r\ \ \sqrt{3/10}r\end{array}\right\}\begin{array}{c}\text{and}\\\text{centre.}\end{array}$$

The simplest applicator to build up is that having a radius of 4 cm. Obviously radium will be placed on the A circle and at the centre. It is also obvious that a little less than the full A curve and a small fraction of the X curve will be required to give unit intensity.

Let a be the proportion of the A curve to be taken and x the proportion of the X curve, and let unity intensity be assumed at the centre and also at $\sqrt{\tfrac{3}{4}}r$ (=3·48 cm.). Two equations can then be obtained by considering the conditions at these points:—

$$\begin{array}{lll}0{\cdot}97\,a+1{\cdot}0\,x\ \ =1 & \ldots\ \ldots & \text{at the centre.}\\1{\cdot}0\ \ a+0{\cdot}427\,x=1 & \ldots\ \ldots & \text{at 3·48 cm. from centre.}\end{array}$$

$$\text{Which are satisfied by}\ \begin{array}{l}a=0{\cdot}98.\\x=0{\cdot}05.\end{array}$$

These are the proportions of the A and X curves to be taken. The point at which the intensity due to a circle of radium is most easily calculated is on the central axis (a=0 in the formula quoted above). At this point the intensity is given by—

$$\frac{\text{quantity of radium}}{r^2+d^2};\ \therefore 0{\cdot}97\times0{\cdot}98=\frac{\text{quantity of radium on A curve}}{4^2+3^2}$$

$$\text{and}\qquad 1\times0{\cdot}05=\frac{\text{quantity of radium at centre}}{0^2+3^2}$$

Hence the quantity of radium to be put on the A circle is 24 mg. and that at the centre is 0·5 mg.

In exactly the same manner it can be calculated that for an applicator of 6 cm. radius 34 mg. is placed on the B circle and 2 mg. at the centre. In both cases, on account of the method of calculation, the intensity is unity at three positions on any diameter, while check calculations show that the intensity is reasonably uniform on the whole of the plane of the skin.

When we come to an applicator having a radius of 8 cm. it is necessary to place radium on two circles and also at the centre in order to get reasonable uniformity. The two circles chosen are the C and B circles. In accordance with the method indicated above, unit intensity is assumed at the centre and also at distances 5·65 cm. and 7·30 cm. from the centre. Considering the conditions at these points in Fig. 1 the following equations are obtained:—

$$\begin{array}{l}0{\cdot}67\ \ c+0{\cdot}8\ \ \ \ b+\ \ \ \ \ x\ \ =\ 1\ \text{(centre).}\\0{\cdot}92\ \ c+0{\cdot}995\,b+0{\cdot}225\,x=\ 1\ \text{(5·65 cm.).}\\0{\cdot}995\,c+0{\cdot}805\,b+0{\cdot}147\,x=\ 1\ \text{(7.30 cm.).}\end{array}$$

The solution is c=0·810, b=0·187, x=0·308, and the corresponding quantities of radium are 40 mg., 7 mg., and 3 mg. The resulting intensity is unity at five positions on any diameter. By continuing this process Table IV. has been drawn up:—

TABLE IV

Radius of applicator.	Mg. of radium at the following radii give a skin dose of 1 γ.						
	Centre (X).	4 cm. (A).	6 cm. (B).	8 cm. (C).	10 cm. (D).	12 cm. (E).	15 cm. (F).
4 cm.	½	24	—	—	—	—	—
6 ,,	2	—	34	—	—	—	—
8 ,,	3	—	7	40	—	—	—
10 ,,	2	—	14	—	47	—	—
12 ,,	2	—	16	—	9	52	—
15 ,,	2	—	16	—	—	29	59

In the cases of the 12 cm. and 15 cm. applicators the intensity in the plane of the skin is unity at seven points on any diameter.

The above Table represents one of a large number of similar tables that might be drawn up. The method can be made as accurate as desired by increasing the number of circles upon which the radium is placed, until the mathematically perfect solution is obtained, in which the number of circles is infinite. The limit of accuracy desirable is, however, controlled by the fact that the radium is in containers, and therefore cannot be *uniformly* distributed on the circles.

An applicator smaller than 8 cm. diameter has not been considered as, with a distance between the radium and the skin of 3 cm. and with the whole of the radium on the periphery, such an applicator produces a maximum intensity in the centre.

The distribution of radium in non-circular applicators is at present under investigation. As far as possible the arrangement employed in the circular applicator is followed, as is shown in Fig. 3 which represents that adopted for a typical "collar."

For convenience a skin intensity of 1 γ has been taken as "standard," but this is by no means strictly adhered to and applicators are more often constructed to produce a skin intensity of 1·5 γ. Also, where it is convenient to give short daily doses, the skin intensity may be increased to 3 γ.

In the actual construction of the applicators a cheap quality dental compound is used, alone or in conjunction with sponge rubber sheet ¼ inch thick. Alternately, in suitable cases two thicknesses of sponge rubber are employed and considerable ingenuity may be required to make the applicator follow the contour of the skin. After the shape has been made, two thicknesses of "1 lb. lead" sheet are spread over the applicator on the side away from the skin. Over the lead the needles are placed in their prearranged positions and these are made secure by placing another sheet of lead over the needles, covering this with adhesive plaster and finally covering the applicator completely with lint.

It is found that the maximum skin dose is in the neighbourhood of 300–350 γ-hours, so that the tumour may receive a dose of from 150 γ-hours to 250 γ-hours, which experience indicates is less than the lethal dose for malignant glands of the neck and less than the dose given to a tongue tumour by interstitial irradiation.

For treatment of palate growths dental applicators are made. Needles 15 mm. long and containing 1 mg. of radium are fixed in grooves cut in the vulcanite of the applicator, extra lead for screenage is fixed in position, and the whole is thoroughly sealed by means of dental cement having a high softening point. In this case the absence of skin modifies the problem and the radium is arranged to give an even intensity of 2 γ in the central portion of the growth. This is usually obtained by placing about twelve needles round the periphery of an area represented by a circle 4 cm. in diameter, the radium being situated about 1·5 cm. from the growth. In the case of such palate tumours, the optimum dose is about 300 γ-hours, which is comparable with that obtained by interstitial irradiation. The unit of intensity of gamma rays is defined on the assumption of a screenage of 0·5 mm. of platinum, which is that usually employed for interstitial irradiation. In the applicators described a screenage equivalent to 1·0 mm. of platinum is employed, so that strictly the intensity of radiation should be reduced by about 6 per cent.; other errors probably make this correction negligible.

Clinical Details of Treatment

PRE-OPERATIVE TREATMENT

The degree of septicity of the mouth requires consideration. In mildly septic mouths mouth-washes and brushing by nurse or dentist are all that is required. In moderate and severe degrees more care must be exercised in the preparation. Before 1928 it was usual to have an extensive dental toilet performed, all carious teeth being removed and the sound ones scaled and energetically brushed free of tartar and debris. Such a procedure necessarily entailed considerable trauma to the soft tissues and sometimes to the bony alveolus as well. It was found that in spite of waiting 14–21 days for the parts to heal, radium burning and necrosis of the soft tissues was more frequent than when less extensive dental measures were taken. The procedure now advised consists in removing only the very worst of the carious teeth under gas (local infiltration damages the gums), the remainder being lightly scaled and brushed.

Routine blood tests have shown that only a small percentage of the total number of cases (7 per cent.) have a syphilitic taint. In all cases where the Wassermann reaction is positive an intensive course of antisyphilitic treatment before irradiation would appear to allow of more favourable results.

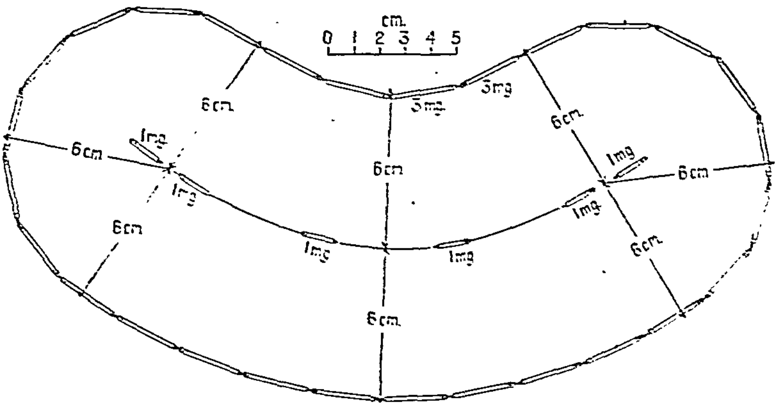

FIG. 3.—The arrangement of a total of 90 mg. of radium on a typical "collar" is shown. The boundary line has not been drawn, but the longer needles are arranged as close to the periphery as possible.

TREATMENT OF THE PRIMARY LESION

The tongue.—Growths can be divided into tumours of the free mobile portion (anterior two-thirds) and those arising from the pharyngeal portion (posterior one-third).

In the anterior two-thirds the cases have varied in degree from small localised tumours to large masses spreading widely through the tongue and often invading the floor of the mouth. Treatment should not be withheld on account of the extent of the growth, since very advanced lesions can often be improved and the patient's life rendered more tolerable.

Clinically the growths tend to fall into three types: the ulcerous, where there is early ulceration and a marked invasive tendency; the nodular, where the growth arises in the deeper layers of the epithelium and spreads as a nodular infiltration with little tendency to ulceration; and the papillomatous, where the growth is of a warty type with comparatively little invasive tendency. The third type is seen in the older patients; the ulcerous more especially in the younger. The papillomatous is by far the most and the ulcerous the least radiosensitive. No correlation has been found between the microscopic structure of the growths and their degree of radiosensitivity, and on several occasions a tumour has exhibited at different points the microscopical appearances of several of the Broders groups—i.e., the microscopical structure is not uniform throughout any given growth.

Interstitial needling is the routine treatment, using needles containing 1 mg. of radium element screened

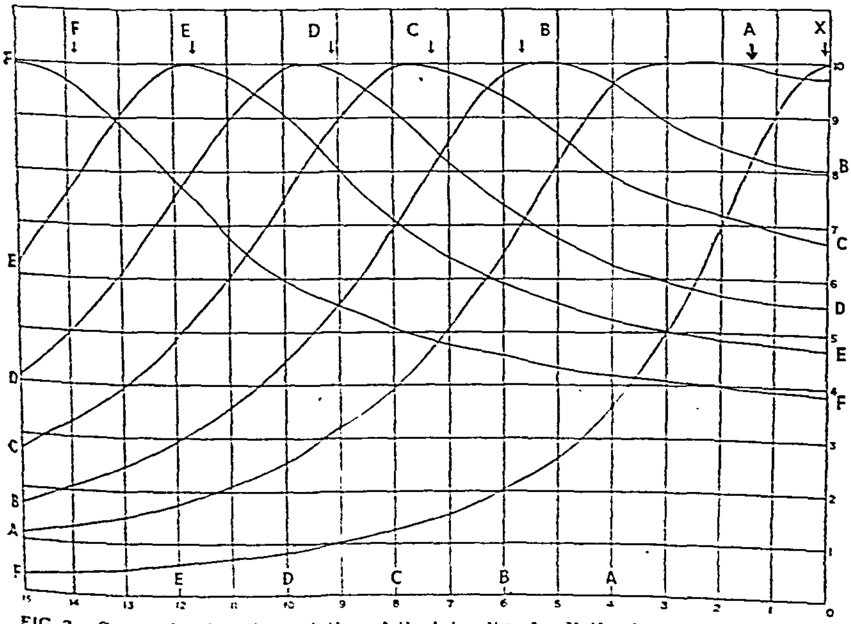

FIG. 2.—Curves showing the variation of the intensity of radiation in a plane 3 cm. from radium uniformly distributed on circles of 0 cm. (X), 4 cm. (A), 6 cm. (B), 8 cm. (C), 10 cm. (D), 12 cm. (E), and 15 cm. (F) radii. The squares in the horizontal direction represent centimetres and in vertical direction tenths of the gamma unit.

by 0·5 mm. of platinum and of an overall length of 27 mm. These needles are of adequate power and sufficiently screened to be almost universally useful in mouth cases. The number of needles required depends on the size of the growth and the method of estimating the number of needles to be used has already been described. The number varies from 7 to 15 and they are inserted about 1 cm. from the edge of the growth and spaced about 2 cm. apart. The needles should be well buried and stitched into position with care. The radium is left in situ until the "optimum reaction" is seen, usually in from seven to twelve days, when the needles are removed with a minimum of trauma.

The phase of tissue change termed the "optimum reaction" is fairly well defined and all workers with radium in the mouth should be well acquainted with it, since, if irradiation is carried beyond this point, a good deal of avoidable burning and necrosis will occur. The growth becomes softer and rather more hyperæmic; and at the spots where the needles are buried small white areas appear, due to localised tissue necrosis. On the surface of the growth soft, white plaques of lymph appear and beneath them, if the lymph be removed, is found a smooth red surface. Failure to appreciate this reaction results in under- or over-exposure. In this situation lead protectors for the alveoli are not required, since the needles are sufficiently buried in the soft tissues to prevent damage to the jaws.

In the posterior third the growths are usually more advanced when first seen and are often of the ulcerous type, so that widespread infiltration of the base of the tongue and lateral spread to the pharyngeal wall are frequent.

Infection of the upper deep glands of the jugular chain is early, and there is also a considerable tendency for crossed infection to the glands of the opposite side. For these reasons, and on account of the fact that these growths are less radiosensitive than those of the fore part of the tongue, the prognosis is bad.

Treatment is carried out by interstitial irradiation on the lines laid down above, but a satisfactory deposition of the needles is more difficult to achieve. (If trans-oral implantation is difficult, additional access may be obtained by splitting the cheek or by lateral pharyngotomy.) Great care is necessary to get beyond the backward prolongation of the growth, and sometimes it is impossible to stitch the needles into position at this site. Rather larger needles should be used and pushed well into the tissues with a right-angled introducer; they will then usually remain in position. It is obvious that the observation of the optimum reaction will prove more difficult in growths so far back, but with care it can be ascertained and the needles removed at the correct time. Radon seeds naturally suggest themselves as an alternative to needling owing to the ease with which they can be introduced, but we do not believe that they are nearly as efficacious as the element itself. The average dose used in the cases in this series has been eleven 1 mg. needles kept in position for nine days.

Floor of mouth.—Cases in this site are often advanced and have not infrequently spread to the tongue or alveolus. Where the growth is confined to the floor of the mouth it is treated by interstitial irradiation, using needles of 16 or 27 mm. length, as required; an average number is seven. Should the needles abut closely on the alveolus it is necessary to fit a lead protector to the jaw. When the alveolus is affected it is useless to treat by irradiation only; the part of the growth on the floor of the mouth is carefully irradiated on the usual lines but omitting the lead protector. At the end of four or five weeks the growth in the floor will be much reduced in size; the alveolar portion of the growth is now excised, together with the remains of the growth in the floor, in one piece. The excision is done widely, splitting the lip or cheek or both if required to facilitate access. After exposure the bone is drilled with a burr at several points and the holes connected up with a Gigli saw, the lower border of the mandible being left as a bony bridge. After healing is complete —which takes from six to eight weeks—the case is watched for a further month and the cavity is then irradiated by means of a dental applicator built to a cast of the mouth. The dosage carried by the applicator is calculated on the lines laid down in section *a*.

The irradiation must be closely watched, the newly formed epithelium lining the cavity being very delicate and easily damaged. There is no typical optimum reaction, and the irradiation should be stopped as soon as lymph plaques appear on the epithelium; as a rule five to six days are required. The rest periods, during which the applicator is out of the mouth, should be fairly long—at least six hours in the 24.

Inner aspect of cheek.—Growths in this region are highly radiosensitive and give excellent results provided that extension to the alveolus has not occurred. Interstitial irradiation is employed, and since the needles can be well buried no protector to the alveolus is necessary. If the cheek is thick, an external applicator of stent is applied in addition to the outside of the cheek. The applicator is made on the principles previously laid down, but carries half the usual dosage.

Involvement of the alveolus adds greatly to the difficulty of dealing with the case and renders the outlook much worse. In two advanced cases the cheek part of the growth was irradiated, and a month later the alveolus was excised leaving a bony bridge to maintain the continuity of the jaw. Recurrence occurs rapidly, and if the alveolus be markedly involved the case should be regarded as beyond treatment.

Lip.—Epitheliomata in this site are very radiosensitive while they remain confined to the lip. Interstitial irradiation is required, but if the body of the lip is extensively infiltrated surface irradiation by a stent cast is advisable in addition. When the growth extends on to the alveolus the lip is first irradiated and, after a suitable interval, the alveolar growth is excised, leaving a bony bridge. After healing the cavity is irradiated by an applicator. The results even in advanced cases are very encouraging.

Hard and soft palate.—These growths are not common and as a rule are detected early. For some considerable time the growth is confined to the mucosa and submucosal layers, spreading out on the surface but not going deeply; while in this stage some degree of success can be looked for from surface irradiation, interstitial irradiation being impossible owing to the small depth of tissue. The applicator must be a perfect fit and should be built so that the radium is at a distance of at least 10 mm. from the growth; it should be lightly filtered with thin lead. Howkins, to whom we are indebted for all our applicators, has described in detail the method of making these often complicated appliances.

The stage of optimum reaction is usually well defined and requires longer to develop than where interstitial irradiation is used. Where the bone is involved the tumour should be removed widely by surgery, and after healing is complete the cavity should be irradiated by an applicator built to fit the cavity. Subsequently an obturator is required to make good the defect in the hard palate. In the soft palate needling is impossible owing to the thinness of tissue, while surface irradiation is unsatisfactory owing to its motility. Diathermy excision is the best method available.

TREATMENT OF THE GLAND FIELDS

This still constitutes the main problem. In 60 per cent. of all cases the primary growth disappeared and the site remained free from recurrence, but in a proportion of these cases the glandular deposits have proved resistant to all treatment and have killed the patient. Clinically the cases fall into three groups :—

(1) The glands are not enlarged.
(2) The glands are enlarged but are operable.
(3) Either the glands are enlarged and fixed or there is diffuse infiltration of the cellular planes with new growth.

In all cases the primary growth has been dealt with at least 14 days previously.

(1) The usual procedure is a dissection of the gland fields, draining the area on one or both sides as required. We do not remove the sternomastoid or the internal jugular vein, but particular care is taken to go well above the posterior belly of the digastric as it lies under the parotid and to clear the jugular chain right up to the base of the skull. Venous bleeding from tributaries of the jugular is apt to be troublesome. A month after the neck is healed the area is widely irradiated; a sorbo or paste collar is applied and retained until there is well-marked skin erythema, produced slowly over a period of from 10 to 15 days. We have grave doubts as to the efficacy of irradiation alone in the treatment of cervical deposits, owing to the depth at which they are often placed and their encapsulation in the lymph glands. In certain cases, where the patients are elderly or feeble and the primary growth is small and has responded readily to irradiation, it has been thought justifiable to leave the neck alone, watching the case closely. Of ten cases where this was carried out nothing further was required in five, but in the remainder the glands enlarged and treatment was carried out as above.

(2) The glands are palpable but operable. Treatment is carried out on the lines advocated above. It is not infrequently found that microscopically the enlargement is due to inflammatory changes.

(3) The glands are enlarged and fixed, or there is diffuse infiltration of the neck by growth. The diffuse brawny induration is seen only in the worst cases and is of the gravest omen. The growth has erupted through the capsule of the glands and run widely through the connective tissue planes of the neck. It is a terminal stage in the neck infection and we have never seen it respond to any form of treatment. (There has been no opportunity of trying the radium bomb.)

Where the glands are enlarged and fixed but there is no diffuse infiltration, the outlook is slightly better and treatment should be attempted. The only method that has given any results in our hands has been to expose the infected gland areas by reflecting carefully planned flaps and to needle the affected part thoroughly. Usually about 20 to 25 needles of 2 mg. strength are used and are left in position for seven to ten days. They are then removed by reopening the neck; some suppuration in the neck almost always follows, but the wounds ultimately heal well. This is followed, after the wounds have consolidated, by X ray irradiation of the neck. We have seen very definite and apparently complete regression of the infected glands in three cases and some degree of improvement in several others.

It will be seen from the methods advocated above that surgery, including surgical diathermy, has only a minor part to play in the treatment of the primary lesion. When the soft tissues alone are involved (and these cases constitute at least 80 per cent. of all cases that come within the scope of treatment) irradiation constitutes the best method of attack, the exception being the soft palate. When bone is invaded excision alone offers any chance of obliterating the disease.

From time to time cases of epithelioma of the tongue are met with (three in the present series) which fail to respond to repeated irradiations. Usually there is a strong underlying syphilitic taint, and if after two irradiations no improvement is manifest then diathermy excision is required. This usually means the removal of half or more of a leucoplakic tongue carrying a radio-resistant growth upon it.

In very foul ulcers and exuberant papillomatous growths a light application of the diathermy current is often beneficial before irradiation. It causes a superficial slough which on separation leaves a clean surface of growth, allowing the needles to be placed in a much cleaner area; the healing of the growth is apparently facilitated and rendered more certain than by irradiation alone.

Results

Table V. embodies the results of treatment of all cases dealt with at the General Hospital, Birmingham, for the six years 1926–1931 (160 cases), plus 32 cases treated in private. The cases have all been closely reviewed recently, and in the very few instances where it has been found impossible to trace the patient he has been presumed dead.

The cases are grouped under the following heads :—

(*a*) Apparent clinical cures. No sign of disease is present in mouth or neck and the patient is in good health after two years or more.
(*b*) Improved. Cases have progressed well from a clinical standpoint but cannot be placed in group (*a*) owing to their relatively recent treatment.
(*c*) Not improved.
(*d*) Dead.

TABLE V.—*Results 1926 to 1931*

Site.	Cases	Groups			
		(*a*)	(*b*)	(*c*)	(*d*)
Ant. ⅔ tongue ..	45	15(33·3 %)	3	3	24
Post. ⅓ " ..	49	17(34·9 %)	3	7	22
Floor of mouth	30	6(20 %)	2	5	17
Soft palate ..	8	2(24·4 %)	1	1	4
Hard palate ..	6	1	1	1	3
Cheek	37	24(65 %)	1	1	11
Lip	17	11(65 %)	0	0	6
Total ..	192	76(39·6 %)	11(5·7 %)	18(9·4 %)	87(45·3 %)

It will be seen that the cheek and lip are the most favourable sites for radium therapy. The growths are extremely radiosensitive, and the scar left is wonderfully soft and pliable. Glandular infection is usually late and not so widespread as in the tongue and floor of the mouth; this probably depends on two factors: firstly, the less abundant lymphatic network; and secondly, the smaller amount of muscle present, for there cannot be any doubt that muscular action plays a large part in aiding the lymph flow, and this favours the deposition of cancerous lymphatic emboli. The figures for the tongue do not show the fact that the primary growths in the majority of cases are favourably influenced, the patients' lives being rendered much more tolerable. It is the glandular spread which proves so fatal. The bad results shown for cancer of the floor of the mouth are due to the fact that this area is relatively radio-resistant compared with the rest of the buccal cavity, and that the spread to the gland fields and alveolus is early.

It would seem from a consideration of those cases of clinical cures obtained in the earlier years that there is considerable hope for its persistence over a number of years, though it is too early for figures to be of much value in the attempt to form any idea of permanent cure.

Summary and Conclusions

1. The unit of dosage adopted is termed the gamma hour and represents that received in one hour at a distance of one centimetre from a point source of 1 mg. of radium, screened by 0·5 mm. of platinum. The dosage received by typical tongue and breast tumours is worked out on this basis, allowance being made for absorption in the tissue.
2. A method of arranging the radium in circular applicators to give a uniform irradiation of the skin is shown, and the maximum dose that it is possible to give the skin when treating glands of the neck is calculated. It would appear that the lethal dose for average tongue, palate, and breast tumours is of the same order as the lethal dose for the skin—i.e., 350 gamma-hours.
3. The clinical methods adopted for the treatment of the primary lesions are described in detail, as are also those adopted for the treatment of the gland fields. In addition, the clinical results are tabulated for 192 cases of buccal cancer treated by radium over a period of six years.
4. It would appear from clinical and physical considerations that the ultimate method of choice for treatment of the gland fields will prove to be irradiation at a distance by a powerful source.

The work on which this paper is based has been carried out in the radium department of the General Hospital, Birmingham. The radium used is in part that on loan from the National Radium Commission and the Medical Research Council.

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Nurses' Superannuation Scheme.—The sixth annual meeting of the Federated Superannuation Scheme for Nurses and Hospital Officers (Contributory) was held recently at the College of Nursing. Under the scheme insurance policies are taken out for individual employees of a large number of institutions. the annual premiums being based upon a percentage of salary and emoluments, and paid partly by the employer and partly by the employee. It was reported that at the end of 1932 there were 12,019 members (since increased to over 13,000) and that institutions representing 64 per cent. of the total voluntary bed complement of Great Britain had adopted the scheme. Of institutions with 200 or more beds 84 per cent. have joined, but of the smaller ones only 50 per cent. are in the scheme. Sir Edward Penton, who presided, emphasised the importance of "the complete and satisfactory interchangeability for pension purposes between State and municipal institutions and the voluntary hospitals and kindred institutions." The "alleged difficulties," he thought, were not insurmountable.

THE RÔLE OF THE ROUND LIGAMENTS IN BACKWARD DISPLACEMENT OF THE UTERUS

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It will be generally agreed that the symptoms associated with retroversion of the uterus are by no means specific to that condition. It will also be agreed that retroversion may exist without symptoms of any kind, and that operative replacement of the uterus is not always followed by the relief of the symptoms supposed to be caused by the malposition. The symptoms—increased menstrual loss, pelvic pain, backache, and leucorrhœa, for example—are those of pelvic congestion which may be due to various causes of which retroversion is sometimes, but not always, one. Consequently there is often some uncertainty in any particular case whether the misplacement discovered on examination is actually the cause of the symptoms of which the patient complains. Because of this uncertainty, it is the practice with many gynæcologists not to advise operation until pessary treatment has been given a trial; if the symptoms are not relieved by replacement by a pessary, it is assumed that operative replacement will be equally unsuccessful.

If operation is decided upon, the appearance of the uterus at the time of operation is of the greatest assistance in deciding whether the retroversion is to be regarded as the cause of the symptoms. If it has the pearly-grey or pink colour characteristic of the uterus in its normal position, one may safely decide that the misplacement is not the cause of the symptoms and that replacement will be of no benefit—except, perhaps, in some cases of sterility or of prolapse of the ovaries. Generally, however, in cases that come to operation, the fundus of the uterus, especially on its posterior aspect, shows very definite evidence of congestion. It is a little enlarged, dark red, even plum coloured, and its posterior surface is often dented or faceted as if from some degree of œdema. What is the origin of this congestion? It is with the object of offering an answer to this question that this communication is written.

In endeavouring to find an explanation of the pelvic and especially the uterine congestion, there is one point that it is important to recognise; this is that the appearances presented at operation, with the patient in the Trendelenburg position, are bound to give a very imperfect picture of the condition actually present when the patient is walking about or working. It may be that this point is generally appreciated, but it has not, so far as I am aware, been mentioned. It is so important that it deserves to be stressed. The patient who is lying on the operating table may have a retroverted uterus, but she is not, at the time, suffering from the symptoms of that condition. She has been lying in bed for a day or more and the pelvic congestion has been relieved by rest. The effect of the Trendelenburg position is to reduce the congestion to a minimum and probably to modify the degree of backward displacement, though even in these circumstances some degree of congestion can be seen.

CONDITION OF RETROVERTED UTERUS IN NORMAL LIFE

I believe it is not an exaggeration to say that we rarely, if ever, see at an operation retroversion of the uterus in the condition in which it exists when it is causing symptoms. To obtain an entirely accurate picture of the condition of the pelvis which will show the state of affairs when symptoms are actually being complained of would be, of course, impossible; for it would involve operating when the patient is tired with walking or working, preferably during a menstrual period, and with the patient in a more or less vertical position. I have, however, in a few cases, endeavoured to reproduce these conditions, as far as can reasonably be done, by allowing (perhaps I should say persuading) patients to stand or walk about the ward for an hour before operation; the patient is anæsthetised in a semi-vertical position (with shoulder rests inverted and placed in the axillæ). The abdomen is opened in that position and, the intestines being packed away, a view is obtained of the pelvis. The patient is then placed in the Trendelenburg position and the operation proceeded with.

THE ROUND LIGAMENTS IN LIFE

The point of particular interest in the view of the pelvis obtained in these conditions is the relation of the round ligaments to the ovarian vessels. As one would expect, the round ligaments are stretched, straightened, and thin, and the uterine attachments of the ligaments are out of sight because the uterus itself is acutely retroflexed so that the fundus is lying in Douglas's pouch. The distended ovarian veins, coming down from the abdomen to turn inwards through the broad ligaments on their way to join the uterine veins, are seen to be crossed by the round ligaments; at the point of crossing, the contact between the ligament and the veins is so close that it is evident that sufficient pressure is being exerted on the veins to obstruct, more or less, the flow from the uterine to the ovarian veins. Bearing in mind that whatever pelvic congestion is brought about by an hour's walking about and a semi-reclining position is but an imperfect imitation of the state of affairs when the patient has done a day's work and is actually suffering from backache, we may reasonably infer, I think, that, in the latter circumstances, the pressure exerted by the ligament and the resulting obstructive congestion would be considerably greater. Only once have I seen a condition resembling that described in a patient operated on in the ordinary way without special preparation.

I do not claim that I have seen exactly the same picture in all cases examined in the reclining position; in some cases, one ligament is only lightly in contact with the veins, the other not touching at all. But even in these cases it may well be that symptoms are only complained of when the fundus is forced down so low that the line joining the uterine attachment of the round ligament to the internal abdominal ring passes below the normal position of the junction of the ovarian and uterine veins. When this happens it must follow that pressure will be exerted on the vessels.

In the cases I have observed retroversion has been associated with retroflexion. Although I have not seen it, I imagine that simple retroversion might cause the same relation between the round ligaments and ovarian vessels provided that the degree of tilting of the uterus is sufficient to allow the fundus to be pressed well down into Douglas's pouch. However, I think it must be commoner when retroflexion is present. Certainly a moderate degree of retroversion will not allow the ligament to come into contact with the ovarian vessels. As an illustration of this point one case in particular was of interest; it was diagnosed as one of retroflexion. At operation, however, the uterus was found retroverted without flexion; a fibroid was projecting from the posterior wall and was lying in Douglas's pouch. There was no sign of congestion of the uterus, and the round ligaments were, of course, lying quite clear of the vessels. This patient had none of the ordinary symptoms of backward displacement; there was no backache, no leucorrhœa, and the menstrual loss was scanty. She complained only of a bearing-down feeling and of difficulty and pain on defæcation.

The question whether the round ligaments actually play the part I have suggested in the production of congestion could, I suppose, be settled by simply dividing the ligaments in a suitable case and noting if symptoms were relieved. Such an operation would, no doubt, be unjustified in view of the satisfactory results obtained in more orthodox ways. In the absence of such proof I submit that the appearances I have described allow of the inference being made that the round ligaments do, by their compressive effect on the ovarian veins, play a part in the causation of symptoms in backward displacement of the uterus.

The round ligament is generally regarded as being too slight a structure to be able to play an active part in holding the uterus in its normal position of anteversion. During pregnancy, however, it becomes a powerful muscular band; the late Mr. Christopher Martin held the view that its only functions were to steady the uterus in pregnancy and to aid the uterine contractions in labour. It may be doubted, however, if it is true that, in the non-pregnant woman, the ligament has no function whatever. For it may sometimes be observed, during an operation on a case of retroversion, that after manual replacement of the uterus in a forward position, the round ligaments, previously thin, overstretched and apparently toneless, become in a few minutes thickened and shortened. This change is evidence of a partial restoration of muscular tone and suggests an attempt to perform a function—namely, to hold the body of the uterus forwards. It seems to be associated with the remarkable increase in tone of the whole uterine musculature that occurs when a retroverted uterus is replaced and which results in the almost immediate shortening of the cavity of the uterus, as pointed out by Fothergill. If the misplacement has been of long standing, it is unlikely that recovery of muscular tone will be complete enough for the position of anteversion to be maintained. But the spontaneous replacement of the uterus that takes place in many cases of post-puerperal retroversion is evidence that recovery may follow a short period of over-stretching.

THE USE OF CONTACT GLASSES

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The advent of a new method of treatment frequently entails the employment of that method in conditions other than that for which it was originally intended; such trials are often disappointing and lead to the measure being wholly and unjustifiably condemned. Contact glasses have not avoided this tendency, and at the present time their use is not entirely popular, since they have not proved satisfactory for all the ocular conditions wherein they have been employed. Such conditions range from hay-fever to the alteration of the colour of an eye according to taste.

In 1888 Fick first conceived the idea of abolishing the refractive power of a distorted cornea by maintaining on its outer surface a layer of fluid equal in refractive index to that of the aqueous humour: this layer is supported by means of a glass shell conforming to the curvatures of the anterior segment of the eye; such a shell is held by capillary attraction, in close apposition, and is covered by the lids. Thus the idea is not of recent origin, but has come into prominence lately since the firm of Zeiss have brought the manufacture of the glasses to a high state of technical excellence. It is now possible to have these glasses graduated to a quarter of a millimetre.

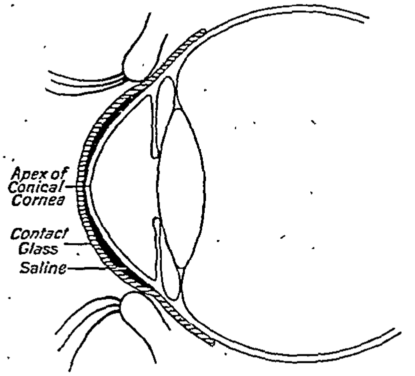

Diagram showing the contact glass in position over a conical cornea, a layer of saline intervening. (Reproduced from the *British Journal of Ophthalmology*.)

Defective vision which results from conical cornea is mainly due to the excessive refraction which rays undergo on transmission through such a cornea. In mild degrees this astigmatism may be neutralised by cylinders, but in most cases the distortion is too great to permit of such optical correction. If the refractive power of such a cornea be abolished by a contact glass-saline meniscus combination, then clarity of vision is re-established.

Their early success in cases of high astigmatism led to the application of the glasses to other types, but it must be remembered that where the refractive error can be corrected by ordinary lenses, contact glasses are not indicated unless for special reasons. These glasses are not intended to replace ordinary spectacles, but are for use in cases where spectacles cannot be employed, a fact which must be clearly borne in mind. Indiscriminate application has led to wholesale condemnation.

Two cases are recorded to indicate the value of this method: the first is that of a girl with conical cornea, who has worn the glasses for nearly two years and is therefore past the experimental stage; the other is that of a medical man who required them for a special purpose.

CASE 1.—For four years Miss A, aged 24, has been under observation as a case of developing conical cornea, and eventually her refractive error became so astigmatic that ordinary spectacles failed to improve her vision beyond 6/60 in each eye; she was unable to continue her work any longer as a pastry cook. In August, 1931, contact glasses were fitted giving her normal vision in each eye. She has continued to wear these ever since, and is comfortable; without them she is unable to read the figures on her wrist watch. The psychological effect of the glasses has been very great, and her whole mental outlook altered.

CASE 2.—A medical man, aged 26, was prevented from enjoying his hobby of swimming by a myopia of 6 dioptres in each eye. This was of great inconvenience in the recognition of distant objects during swimming, and it was not possible under those circumstances for him to wear his usual correction. Contact glasses were fitted six months ago, rendering his vision normal in each eye, and enabling him to take the water without spectacles, and in consequent greater comfort.

The practical details of these glasses are few. They are easy to insert and are comfortable in use if fitting correctly; no local anæsthetic is necessary, the saline meniscus being isotonic with the tears, and therefore non-irritant. There is less risk of damage to the eye if a contact glass is broken in situ than there is with an ordinary spectacle lens, and no case has yet been recorded (Rugg-Gunn). Their cost is about £5 each.

Contact glasses have proved successful in (1) conical cornea; (2) neuro-paralytic keratitis; (3) selected cases of refractive error; but for ordinary errors of refraction they do not replace the usual means of correction.

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COMPLEMENT-FIXATION EXPERIMENTS ON 200 STRAINS OF CORYNEBACTERIUM DIPHTHERIÆ

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OVER thirty years ago Bordet and Gengou showed that specific complement-fixation reactions could be obtained for *Bacillus pestis*, *B. typhosus*, and *B. proteus vulgaris*. Dean in 1911 used a modification of this method and claimed that it provided a means of differentiation between *Bacillus paratyphosus* B and *B. aertrycke*, a finding supported by the work of Hecht Johansen (1923).

The studies of Weil and Felix in 1920 demonstrated that complement-fixation tests gave a resultant grouping of the salmonella organisms comparable to that obtained by agglutination reactions. Eberson (1918) used this method of approach to the problem of separating diphtheroid organisms and his results indicated the possibility of thus grouping four strains which gave differing biological reactions. Hooker (1916) experimented with strains of *B. typhosus* and showed that these fell into three groups, a finding supported by absorption tests.

We became interested in this subject again as a result of a tentative suggestion made by one of us (J. M.) in 1932 in connexion with the problem of *Corynebacterium diphtheriæ*, "gravis" and "mitis." It was hoped that this procedure might help to settle the difference of opinions on this subject. Before commencing any work on strains of this organism a technique was worked out on other closely related organisms, concerning which knowledge was more firmly established. The same technique was applied throughout.

The antigens used were saline suspensions prepared from 24-hour smooth cultures grown on agar and killed with formalin. The antisera were prepared from rabbits and the hæmolytic system consisted of sheep's washed red blood-cells and Burroughs, Wellcome and Co.'s amboceptor (titre 1–2000). Owing to the close relationship of gravis, mitis, and intermediate, cross tests were necessary to obtain any type indications.

The tests were graded by diluting the antigen, but in order to get reliable comparisons each antigen was carefully standardised by the opacity method. This method of antigen dilution proved better than working with a constant antigen and varying dilutions of serum.

The tests were incubated for 45 minutes in the water bath at 37° C., the hæmolytic system was added, and the results read after a further 30 minutes' incubation.

Our results are shown in Tables I. to IV.

TABLE I.—*Shiga and Flexner (Lister strains)*

	Shiga antiserum.						*Flexner antiserum.*					
Antigen dilution ..	1	1/2	1/5	1/10	1/15	1/30	1	1/2	1/5	1/10	1/15	1/30
Flexner antigen ..	±	–	–	–	–	–	+	+	–	–	–	–
Shiga antigen ..	+	+	+	+	±	–	+	±	–	–	–	–

TABLE II.—*B. typhosus and B. paratyphosus* B *(Oxford)*

	Typhoid antiserum.						*Para. B antiserum.*					
Typhoid antigen ..	+	+	+	+	+	+	±	–	–	–	–	–
Para. B antigen ..	±	–	–	–	–	–	+	+	+	+	+	+

TABLE III.—*Gonococcus and Micrococcus catarrhalis (local strains conforming to type)*

	Gonococcus antiserum.						*M. catarrhalis antiserum.*					
Gonococcus antigen ..	+	+	+	+	+	+	+	+	+	±	–	–
M. catarrhalis antigen ..	+	+	+	±	–	–	+	+	+	±	–	–

TABLE IV.—*Salmonella Group (Lister strains)*

Antigens.	American antiserum.	English antiserum.	Derby antiserum.
American *suipestifer* ..	1/100	1/50	1/75
English *suipestifer* ..	1/50	1/100	1/50
Derby	1/50	1/50	1/100

As can readily be seen, the method employed gave clear-cut differentiation between these groups of closely allied organisms.

Acting upon this, we attempted to apply the same technique to 200 strains of *C. diphtheriæ* isolated in this laboratory and carefully tested along the lines described by McLeod and his co-workers. Support for such an attempt is afforded by the work of Bandi in 1903 who demonstrated a complement-fixation reaction for *C. diphtheriæ*. The sera were prepared by inoculating rabbits with killed cultures of strains conforming exactly to the Leeds criteria of gravis and mitis types respectively. Later an "intermediate" serum was added. The results appear in Tables V. and VI. Table V. gives the findings when 100 strains were run up against gravis and mitis sera only and Table VI. tabulates the grouping when gravis, mitis, and intermediate sera were tested with a further 100 strains. The following conclusions may be drawn:—

(*a*) The serological relationship between the three types is very close.

(*b*) The gravis was more antigenic than the other two, a statement supported by the comparative ease with which gravis antisera were prepared. To obtain fixation with our antigens of *C. diphtheriæ* and their corresponding antisera, the bacterial suspensions had to be used ten times as strong as those required for the salmonella experiments.

(*c*) The gravis type proved to be more distinct than the other two. Of these strains, 95 per cent. in the first batch and 68 per cent. in the second gave results true to type.

TABLE V.—*First 100 Strains Tested against Gravis and Mitis Sera*

Description of strains.	Number tested.	Complement-fixation tests.			—
		Gravis.	Mitis.	No indication.	
Gravis (all tests)	22	21	—	1	95% correlation.
Mitis (all tests)	52	3	36	13	69% correlation.
Intermediate (all tests)	3	1	2	—	—
Mitis (all except atypical colonies)	8	3	5	—	—
Gravis (all except atypical colonies)	4	3	1	—	—
Gravis (hæmolytic)	4	2	—	2	—
Mitis (non-hæmolytic)	2	1	1	—	—
Mitis colonies. Hæmolytic, no pellicle in broth, ferments polysaccharides	2	1	1	—	—
Gravis colonies. Hæmolytic. No pellicle. Ferments dextrin only ..	2	1	—	1	—
Gravis colonies. No pellicle. Non-hæmolytic. Early alkaline producer. No polysaccharides fermented	1	1	—	—	—
Total	100	37	46	17	—

TABLE VI.—*Second 100 Strains Tested against Gravis, Mitis, and Intermediate Sera*

Description of strains.	Number tested.	Complement-fixation tests.				—
		Gravis.	Mitis.	Intermediate.	No indication.	
Gravis (all tests) ..	22	15	—	2	5	G. 68% I. 9% N.I. 23%
Mitis (all tests)	31	—	9	9	13	M. 29% I. 29% N.I. 42%
Intermediate (all tests) ..	24	6	—	15	3	G. 25% I. 62·5% N.I. 12·5%
Mitis (atypical colonies)	2	1	—	1	—	—
Gravis (atypical colonies)	5	1	—	3	1	—
Mitis (ferments dextrin)	14	—	3	5	6	—
Gravis (hæmolytic, late alkaline)	1	1	—	—	—	—
Mitis colonies (ferments dextrin, non-hæmolytic turbid in broth) ..	1	—	—	1	—	—
Total	100	24	12	36	28	—

G.=gravis. M.=mitis. I.=intermediate. N.I.=no indication.

(*d*) The typical "intermediate" strains were more closely related to the gravis type than were the mitis strains. Of the 27 intermediate strains tested, 7 gave gravis results, and of the 83 mitis strains tested, only 3 gave gravis results, but these were in the first batch when an intermediate serum was not used. When three sera were used not a single mitis strain gave a gravis result.

(*e*) Individual intermediate and mitis strains varied greatly in antigenic activity.

(*f*) Some mitis and intermediate strains could only be separated into groups rather than definite types. This is particularly shown by the results obtained from mitis strains using three sera. Only 29 per cent. gave results true to type (as judged by fermentation reactions and colonial appearance); 29 per cent. gave intermediate results and 42 per cent. gave no indication whatever.

(*g*) The 23 irregular strains in the second 100 which could not be classified by the Leeds method reacted as follows: 10 intermediate, 7 no indication, 3 mitis, and 3 gravis, showing that these irregular strains were heterogeneous antigenically. In the first batch, where only gravis and mitis sera were used, 23 irregular strains were tested, of which 12 proved to be gravis, 8 mitis, and 3 gave no indication. It is likely that, had an intermediate serum been available in these cases, a large number of apparently gravis results would have turned out to be intermediate and so given a closer correlation with the second batch of irregulars.

(*h*) Ten normal human sera fixed the three types very feebly (1 in 4) and equally.

In complement fixation with bacterial antigens many incalculable factors are involved. In the above investigation we have tried to control some of them by doing comparative cross-tests with antigens prepared in an identical manner. There are, however, strain peculiarities which cannot be gauged accurately, such as the rate of autolysis and the physical conditions affecting adsorption. With these reservations we contend that serological grouping by this means does not coincide with the method of classification suggested by the Leeds workers.

We wish to acknowledge our indebtedness to F. W. Duke for his help with the typing of cultures and G. Shotton for his keeping of records.

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Clinical and Laboratory Notes

CONGENITAL EPULIS

WITH REPORT OF A CASE

BY PROBODH CHANDRA DAS, M.B. CALCUTTA
HON. VISITING GYNÆCOLOGIST TO THE GENERAL HOSPITAL, HOWRAH, CALCUTTA, INDIA

THE mother of the baby, a Hindu aged 20, was delivered on Nov. 16th, 1931, of a male child at full term after a labour lasting six hours. The presentation was vertex, L.O.A., and the baby weighed 5½ lb., was 19 in. long, and normal in every respect. Two previous pregnancies and labours had been normal. There was no history of syphilis in the parents and the family history revealed nothing of importance.

A few hours after the birth a growth about the size of a large bean was noticed hanging out of the mouth of the baby. The tumour was attached by a broad base to the anterior surface of the lower alveolar process, at the site of the future incisor tooth on the left side. It was quite movable and painless, and it could be easily handled without making the baby cry. Suckling was difficult, and spoon-feeding was resorted to. The tumour was removed on the fourth day, after ligaturing the pedicle with silk. The subsequent treatment consisted only in applying absolute alcohol to the stump once a day. The wound healed by first intention.

The tumour was 2·2 cm. long and 1·5 cm. broad at its widest part, pear-shaped, with a notch on the under surface corresponding to the position of the lower lip. The circumference at its broadest part was 5 cm. It was pale red in colour with a few superficial raw areas, evidently due to friction. The tumour was solid and rather hard, and little resistance was felt on cutting. The cut surface presented a rather uniform homogeneous appearance with a few fine white streaks running in different directions. The tissue looked œdematous, but no blood or fluid oozed out.

Sections were taken from three different areas. These were fixed in Zenker's fluid, hardened, and dehydrated in graded alcohols, cleared in xylol, and embedded in paraffin. Sections were cut 5µ thick and stained with hæmatoxylin and eosin, Van Giesen and Mallory's aniline blue. The sections were examined by Prof. M. N. De, of the Medical College, Calcutta, whose report runs as follows:—

"Externally there is a layer of stratified epithelium, mainly consisting of four or five layers of cells. The basal layer is taller than the rest, and in certain areas it is definitely columnar. The cells become flatter towards the surface. The most superficial layer is cornified. Under the basal layer, in a broken interrupted line, there is a fine layer of collagen fibres (staining blue with Mallory's aniline blue), possibly representing a basement membrane. From this line fine strands of collagen fibres run irregularly towards the centre of the growth and blend with the reticulum, which is very marked (also staining blue with Mallory's aniline blue). In some places the collagen fibres have become much thickened and wavy, resembling white fibres of adult connective tissue. The main bulk of the tumour is composed of cells which are of varying sizes and shapes, but the majority of them are oval or elliptical, while some are spindle-shaped. Each individual cell has a more or less central, round, relatively small nucleus; and each nucleus has a well-defined nucleolus and a chromatin network. The cytoplasm is granular. When stained with Mallory's aniline blue, the cytoplasm takes a pale purplish and the nucleus a red stain. The parenchyma is traversed by many vascular channels, mainly arterioles and veins, and a few lymphatic vessels. The walls of the blood-vessels are thin and lined by a layer of endothelium. There are some extravasated red cells within the tumour tissue."

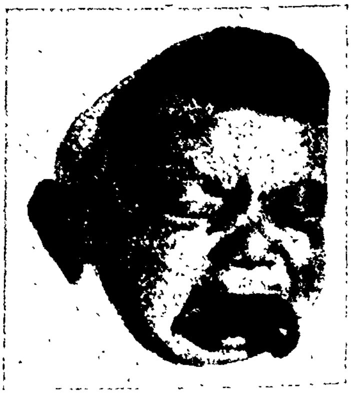

FIG. 1.—Photograph taken just before operation, showing the tumour in situ. Note how the tumour is hanging out of the mouth.

The structure of this tumour corresponds with that described under the term fibroma; it consists of fibroblasts, fibrils, and blood and lymph vessels. The cells of genuine fibromata are usually larger and more numerous than in the adult connective tissue. The matrix of fibromata also varies. In many cases it has the character of embryonal connective tissue. Fibroglia fibres of Mallory and wavy collagen fibres are regularly present. Soft fibromata contain a considerable proportion of cells lying in a soft matrix which is often œdematous. This tumour has all the characteristics of a fibroma composed of embryonic connective tissue.

RECORDED CASES

Congenital neoplasms are rare, and of these epulis is one of the rarest. Literally, epulis means that the tumour is situated on the gum. The term was first coined by Virchow. Formerly chondromata, osteomata, myxomata, fibromata, and sarcomata were all included in the group epulis. Now the majority of writers limit the use of the term to fibromatous and sarcomatous types. According to Oliver, congenital epulides differ essentially from others, fibrous and sarcomatous, cancerous or adamantine. Kaempfer says the type of growth of which congenital epulides consist has not yet received a name. Attached to the border of the gum may be found at birth one or more tumours; Kaempfer describes them as odontoblastomata. Blair says, "It is possible that these 'congenital' tumours are of more frequent occurrence, as they are easily detached and often lost without detection." Kaempfer has collected from the literature eight cases of congenital epulides, and added one of his own.

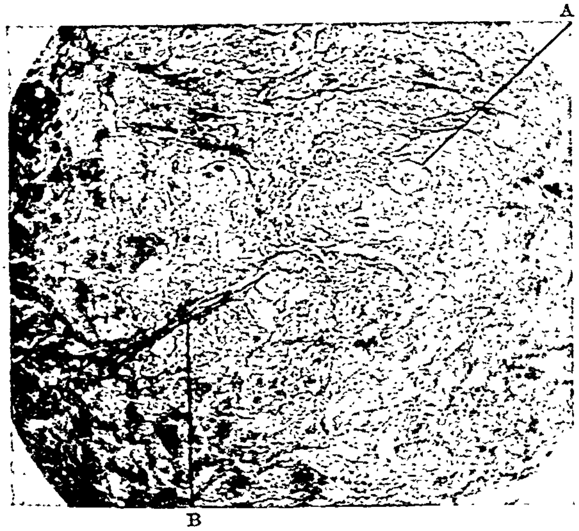

FIG. 2.—Microphotograph (high power) of the tumour near the central portion, where it is more cellular. Note: (A) the characteristic oval cell with granular cytoplasm and small round, centrally situated nucleus; (B) collagen fibres.

Clinically they are congenital and are situated in the gums, either upper or lower. Out of nine previously reported cases five occurred in the upper jaw. (In my case the tumour was in the lower jaw.) Usually it protrudes from the mouth and interferes with nursing. It is more common in the female. These growths are usually small, single, and about the size of a bean. No difficulty is experienced in removing them. In one case (Füth) subsequent dentition was interfered with, as evidenced by maldevelopment of the tooth at the site of the previous tumour.

PATHOGENESIS

Although the microscopic descriptions of all the recorded cases are fairly uniform, observers do not agree on the diagnosis. Oliver is unable to determine the origin, but thinks that it is not from the enamel organ. Schorr, quoted by Kaempfer, regards the tumour as an overgrowth of the enamel organ. Kaempfer believes that these tumours arise from the mesoblastic processes which enter into the formation of the tooth. Congenital fibromata have been noted in other regions of the body—viz., in the scalp (Ballantyne), at the perineal raphé (Chiari). These cases are probably due to misplaced islands of tissue.

My best thanks are due to Dr. M. N. De, professor of pathology in the Medical College, Calcutta, for his guidance and help.

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UNSUSPECTED FOREIGN BODY IN THE GULLET

By E. Watson-Williams, *M.C.*, M.B. Camb.,
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It is common enough for a patient to be convinced that a foreign body is impacted in the gullet, although actually there is nothing there. Far more rarely is such a body present without any history to suggest its presence. The following case report serves to emphasise the importance of a complete examination, even in cases where skiagraphic examination is negative.

A man, aged 55, complained of difficulty in swallowing solids and slight pain on attempting to do so, during six months. Fluids were taken without trouble. The onset was sudden, without warning, nor was anything known that might indicate the cause; the condition was not getting worse. Voice normal, some dyspnœa and stridor on lying down—none when up. General health good, no loss of weight; cough and "a lot of phlegm" during a few weeks only. Well-marked pyorrhœa; right posterior faucial pillar somewhat limited in movement; larynx apparently quite normal. Radiography: nothing abnormal seen on film or during the swallowing of barium bolus.

Direct œsophagoscopy.—Immediately within the entrance of the œsophagus I found a thin, triangular, very sharp scale of bone about 8 mm. each way and 1 mm. thick, with one point just sticking into the posterior mucosa. There was very slight bleeding on removal, but no ulceration could be discovered. The bone was greenish-black in colour, which suggested a prolonged stay in the situation described. No other abnormality; immediate and complete relief.

THE DIASTATIC INDEX IN ACUTE PAROTITIS

By Gavin A. Dunlop, M.D. Edin.
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Although mumps is usually regarded as a rather contemptible disease, at least by the laity, it is generally a cause of much trouble, especially to school medical officers. When the first case has only unilateral swelling, there may be even some difficulty in diagnosis.

It appears from the examination of a number of cases that there is an increase in the diastatic output by the kidney which is comparable in degree with that found in acute pancreatitis; this increase is constantly found, is present from the second day of the disease, and may persist after the swelling of the parotids has subsided. I have examined about 60 cases, making diastase estimations at varying periods in the course of the illness. The diastase was estimated in Wohlgemuth units, but the technique was adapted to avoid geometrical progressions in the dilutions in order to get as near as possible to the actual excretion rate. The urines were all adjusted to the optimum pH, but no measures were taken to secure a uniform excretion rate of water. The failure to secure uniformity in this respect no doubt accounts for the variation found in the number of units of diastase in different samples of urine from individual cases, but in spite of this all the readings were well above 30 units per c.cm., some being over 200.

The question naturally arises: Whence is this surplus diastase derived, and does pancreatitis occur more frequently in mumps than is commonly supposed? I tested 21 of these cases by Loewi's method of instillation of 1/1000 adrenaline solution into the conjunctival sac, with completely negative results. The fæces were not tested for pancreatic activity; but if reliance can be placed on the adrenaline test, then the diastase in all probability is derived from the parotids.

Since making use of this test, I have made it a rule that no case of mumps shall be allowed to mix with others until the urinary diastase has returned to normal, which may be some days after the swelling has subsided; and I believe that this helps considerably in shortening epidemics.

MEDICAL SOCIETIES

OXFORD OPHTHALMOLOGICAL CONGRESS

THIS congress met at Oxford from July 5th to 7th under the presidency of Mr. CYRIL H. WALKER (Bristol), the Master. Among the contributions was one initiating a symposium on the

Treatment of Glaucoma

by Dr. S. HOLTH (Oslo). The first successful operation for this condition was performed, he said, in 1857, when local anæsthetics were unknown. He spoke of iridectomies before and after the use of cocaine, with miotics, the tonometer, and filtering scars. He remarked that he had now completely abandoned classical iridectomy, replacing it by iridencleisis.

Mr. G. YOUNG (Colchester) appeared as a strong advocate of non-operative treatment of glaucoma. Leaving out of consideration exceptional cases, such as low-tension glaucoma, or hospital patients who came from a long distance and returned, so that supervision was impossible, the action of pilocarpine should be tested, with the aid of the tonometer. His experience was that the cases which responded did so permanently if periodically controlled, if the strength and frequency were regulated, and if the patient was completely obedient. Much could be said in favour of leaving well alone when there seemed sound reason for believing that conservative treatment would keep blindness at bay.

Lieut.-Colonel R. E. WRIGHT, I.M.S., said that most of the cases of glaucoma met with in hospital practice in Madras were of the chronic primary variety, chiefly the non-congestive type, with markedly high tension, advanced field changes, and diminished visual acuity. In this group, if any vision remained, the patient was admitted with a view to operation, but a prior course of preparation was undertaken to reduce the tension, so that operation could be done when the tension was at the lowest possible. At the due time, instillations of ½ per cent. solution of eserine were carried out at frequent intervals, leeches were applied on the affected side, a purge was given, and rest at night ensured. If tension tended to come down, the eserine was continued next day, but at longer intervals, massage also being practised. If the eye did not respond to several days of this, an adrenaline pack was given. This was found to cause an initial rise in tension for some hours, followed by a slow fall, which reached its lowest point on the third day. Usually this fall was not maintained more than a week, and then a rise set in, in spite of the routine eserine and massage treatment. Frequent instillations of eserine before and after the pack tended to diminish the initial rise. If the tension failed to come below 25 mm. Bailliart, Colonel Wright preferred to do an anterior sclerotomy with a Herbert's knife, and watched with operating lenses the effect on the iris vessels. If there was marked engorgement or a trace of oozing, nothing further was done at the time, and non-operative measures and repeated paracentesis were instituted. In some cases in which tension had come down to normal after non-operative treatment he had recently been trying cyclodialysis, and the results of this were astonishingly good; it seemed to be a useful, simple, and effective procedure in some of the chronic high tension cases, and it might be a safer operation than decompression in cases responding badly to non-operative treatment.

From the standpoint of treatment a second group were those of well-defined glaucoma simplex, also cases of primary glaucoma, both congestive and non-congestive, moderate in degree, in which the tension was not permanently high, but yet was never quite normal and in which there might be marked field changes, but little or no visual disturbance. In such well-marked cases careful field-taking was necessary, and tonometric observations were made, the ultimate aim being decompression. His experience of iridencleisis was that in order to obtain good results the patient must be kept under non-operative treatment for a variable time, always under observation. A third group of cases were those of early chronic primary glaucoma and glaucoma simplex, and when this condition was diagnosed it was for the surgeon to decide whether operation was called for. In hospital patients whose means did not permit of prolonged observation and non-operative treatment, decompression was advised. He did not feel so sure as some ophthalmic surgeons did that sclero-corneal trephining was the one and only effective operative treatment for all cases of chronic glaucoma, and he was inclined to employ iridencleisis more extensively, especially where there seemed reason to fear the effects of a great, sudden, and prolonged fall in the tension. Yet his impression was that sclero-corneal trephining, when well performed in suitable cases, was the surest form of decompression and best adapted to the hospital patient.

Acute congestive primary glaucoma was not common in his hospital practice. Usually for these cases the methods already mentioned were pushed, with the exception of the adrenaline pack. If the tension did not respond at once, one could employ he intravenous injection of a 30 per cent. hypertonic olution of sodium chloride as described by Duke-Elder; but it was a slow and difficult process, and evere on the patient. In the acute secondary glaucomas of endocular inflammation, he and his colleagues, in India, depended a good deal on paracentesis if the tension was dangerously high, because of the local mydriatic treatment, or in spite of miosis. In chronic secondary glaucoma the cause of the disease was thoroughly treated. If the inflammatory process had subsided he did a broad iridectomy, having previously injected calcium chloride and horse serum. In absolute glaucoma if the eye was painful and blind it might be dealt with by opticociliary neurectomy or alcoholic block if it was desirable to retain it, but one must make sure there was no intra-ocular tumour.

Mr. J. BURDON-COOPER (Bath) said that no case of glaucoma should be operated upon until every effort had been made to quieten the eye by means of some form of conservative treatment. Morphia soothed the nervous system, causing sleep, which was a natural cure for glaucoma, and the contraction of the pupil intensified the effect of eserine.

Mr. T. HARRISON BUTLER (Birmingham) said that after iridencleisis had been done the patient might be able to leave the hospital within a week, whereas the reaction after trephining was probably the most severe of any operation on the eye. During trephining the patient usually suffered a little pang of acute pain, but there was little suffering accompanying iridencleisis. After trephining the eye was nearly always red and congested for a few days; it was exceptional for the latter to be seen after iridencleisis.

Mr. MALCOLM HEPBURN (London) remarked that if ophthalmic surgeons could be sure that non-operative methods were able to produce benefit such methods ought to be more frequently employed. His own experience had led him to conclude that when, from any cause, the tension was high, and could not be lowered by non-operative measures, an operation was needed.

Mr. ALEXANDER MACRAE (Newcastle-on-Tyne), speaking of late infection, said he had operated upon 90 eyes, and among them were three cases of late infection. In two of the cases the patients came at once under suitable energetic treatment, and the eyes were still visually useful. The third patient went so long without care that the eye was hopeless by the time she was seen. He thought it was useless to base any statistics on the results of operations after a few weeks, but if the cases were taken in which trephining had been done years before, the proportion in which tension rose after operation was high, the number in which tension had remained low for years being very small.

Necrotic Sarcoma of the Uvea

Dr. BERNARD SAMUELS (New York), who read a paper on 85 cases of this condition, said that both sarcoma and glioma showed necrosis and degenerative changes, like other tumours of the body, but though glioma underwent early and very marked necrosis there was little local reaction, while in sarcoma necrosis began later, was not so extensive, and the inflammatory reaction was very marked. Glioma, therefore, was not so toxic as was sarcoma. In sarcoma the diagnosis was easiest in the first stage, because of the great dilatation of the blood-vessels in the choroid. The bright red rims surrounding flat sarcoma was most marked on the side next to the optic nerve, due to disturbance in the circulation. With the growth of the tumour the circulation became so disturbed that a transudation of fluid occurred, and that produced detachment of the retina, this latter rendering the diagnosis more difficult. In the second stage the tumour simply grew through a small opening in the lamina vitrea, and a globule was formed, and in the third stage the tumour made its way outside in the eyeball. The fourth stage was one of metastasis, though this could occur at any stage. If there was a scleritis interna the patient had pain. The most difficult cases to diagnose were those in which the tumour was round the optic nerve, because there was an enormous detachment of the retina, and the tumours were so posterior that they could not be transilluminated. Usually the surgeon felt it was necessary to remove as much of the optic nerve as possible, but it was rarely necessary, for it was seldom that the tumour got into the optic nerve.

Mr. E. B. ALABASTER and Mr. W. STIRK ADAMS (both of Birmingham) contributed papers on

The Ears in Miners' Nystagmus

Mr. Alabaster remarked that the posture adopted by the miner in his work had been held to influence the degree of the labyrinthine responses, and in a report on the subject by the Medical Research Council it was said that miners' nystagmus varies directly with the amount of labyrinthine disturbance and inversely with the intensity of the illumination present. Yet the labyrinthine condition had never yet found general favour as an ætiological factor. Mr. Sydney Scott had reported a series of 40 cases of the disease in which the nystagmus was unlike that usually found, as the to and fro movements were equal in speed, instead of one movement being slow and the other a jerk. The most persistent symptom of miners' nystagmus was giddiness which was brought on by movement, and it persisted when the eyes were closed. Patients frequently said they never went out at night for fear neighbours might say they were drunk. The ears of miners might be affected by changes of pressure as much as those of men in the Air Force, and certainly deafness was very common among miners. Of 14 men examined, 11 had definite reduction of hearing acuity, and the remaining 3, tested more minutely, were found to have abnormal labyrinthine responses. The sequence of events seemed to be: a catarrhal condition in the nose; extension of infection along the Eustachian tube; a congestive condition of the middle ear; confusion arising from an antagonism between the two labyrinths; an attempt to obtain cerebral adaptation by means of vision; frustration of this attempt by the poor illumination; fatigue of the elevator muscles; then nystagmus. A related fact was that a pigeon, both of whose labyrinths had been destroyed, could no longer feed itself if corn was strewn on the ground, it could only do so when the food was placed in a container. He hoped that otologists would have greater facilities than in the past for studying these cases.

Mr. Adams spoke of a descent of a deep colliery which he made with Mr. Alabaster, when they saw and examined 14 men, chiefly in respect of their auditory powers; 12 of the 14 had a definite lesion of hearing. One was quite deaf for ordinary purposes, and was proved to have mixed deafness—i.e., of both middle ear and perception character. Two of the men, however, had normal hearing, and therefore they were crucial cases from the point of view of this inquiry. On testing them by the galvanic and the cold caloric tests they did not give the normal responses; if they had done so he would have regarded this line of inquiry as at an end. The Eustachian tube was an important structure in this connexion, and the question arose as to whether deafness was a part of the problem. He did not think it could be excluded.

Mr. SYDNEY SCOTT (London), though he had not seen a case of miners' nystagmus, felt that this line of research was likely to be fruitful, and that a coöperation between otology and ophthalmology should result in a means of prevention and successful treatment of this distressing malady. It was to the ophthalmic surgeon one must look for the material for the research. He made a plea for exactitude of terminology. He remarked also on the minute anatomy of the semicircular canals.

Mr. J. R. FOSTER (West Hartlepool) remarked on the great variability of the hearing power in cases of nystagmus, and said it would be valuable to be told what were to be regarded as normal labyrinthine tests. Something depended, too, on the thickness of the skull bones generally, including the labyrinth walls; in one man with a very thick skull the response to the cold caloric test was only tardily commenced.

Mr. HARRISON BUTLER commented on the absence of controls in this inquiry, though he was glad to see that this aspect of the question was being tackled. There might be some subtle poison at work in these cases of miners' nystagmus.

In reply Mr. ADAMS said that the central cerebral mechanism was important, and Mr. ALABASTER remarked that he could not understand why giddiness should be so pronounced on stooping in patients with miners' nystagmus unless the labyrinth was at fault.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

THE nineteenth annual conference of this association was held at Cardiff from July 13th to 15th, the main subject for discussion being the part played in the production of tuberculosis respectively by (1) infection and (2) environmental conditions.

Introductory Address

In his introductory address the president, Sir ROBERT PHILIP, pointed out that the development of tuberculosis predicated not only the presence of the infecting bacillus, but also the existence of certain conditions favourable to its germination. Given those factors, the spread of the disease within the system would follow. The laboratory animal commonly developed tuberculosis after inoculation because of the relatively large dose administered, although even then the course of the disease thus artificially produced might be varied by varying external conditions. In the human subject the course of events was more complex, depending on the widely varying dosage and the equally widely varying resistance offered by different individuals and by the same individual at different periods. The variations in the soil on which the bacillus had been implanted were themselves largely influenced by environmental conditions. The speaker had long held that one of the primary functions of the family physician should be to determine carefully—by the application at successive intervals of one or other of the tests that were now available—the earliest evidence of infection. It was, however, equally important to study with minute care the environmental conditions to which the individual was, or might be, subjected. The contributory causal factors in tuberculosis included all influences which, however they might be brought into play, tended to handicap the individual in his struggle against the invading bacillus. The circumstances which favoured invasion by the tubercle bacillus were extremely complex, and the purpose of the discussion was to get hold of them and as far as possible assess their several values and relationships.

Lord DAVIES, president of the Welsh National Memorial Association, followed with an address on the history and organisation of the association, pointing out that the scheme was a comprehensive one, and one which endeavoured to lay stress upon the preventive no less than upon the curative side of the work. It served a unit of about two and a half million people, so that the staff of the association was able to concentrate the results obtained over a considerable area, and to provide adequate means for investigation in the institutions under their control.

Prof. S. LYLE CUMMINS, occupying the chair of tuberculosis in the University of Wales, dealt with the place of a tuberculosis department in the life of a medical school, showing how it linked up with research and undergraduate and post-graduate teaching.

Dr. D. A. POWELL, principal medical officer of the association, described in more detail the working of the King Edward VII. Welsh National Memorial association. He said there were many advantages in a national scheme such as this. It was administratively very convenient, it was undoubtedly economical, it fostered team work and team investigations—in which connexion might be mentioned the Memorial Association's inquiry into the incidence of silicosis amongst coal workers—and it pooled the financial resources of the contributing authorities. It combined, moreover, the advantages natural to a voluntary organisation with those inseparable from a State- and rate aided service. It might be claimed that its appeal was even wider—that it had united a nation in a campaign against a disease to which she was peculiarly vulnerable and which had always taken the heaviest toll of her children.

The Part Played by Infection

Dr. RALPH M. PICKEN, medical officer of health for Cardiff, said that if it was accepted that direct infection from person to person was the principal factor in the causation not only of respiratory tuberculosis but also of other forms of the disease acquired via the respiratory route, it was evident that it was not only the main cause of death and disablement from tuberculosis, but also the essential factor in the continuance of the disease, since it constantly propagated new centres of infection. Although the recognisable case of tuberculosis, against the risk from whom their ad-hoc schemes were directed, was clearly in himself a greater danger than the unrecognised, and there was some evidence that the decline of the recorded incidence of pulmonary tuberculosis during the past 15 years was the result of the increasing completeness and efficiency of those schemes in procuring the early detection and detention of infected persons, and the segregation in hospitals of the incurable and rapidly progressive cases, there was, he thought, some ground for believing that undetected carriers of infection were numerous, that they might be increasing in number, that there was not likely to be much advance in methods of ascertaining them, and that, even if they were found, the problem of rendering them harmless presented almost insuperable social and administrative difficulties.

was fair, he believed, to conclude by analogy with ıe epidemiology of the other air-borne infections nd from the observed facts as to the occurrence of ıberculosis itself, that the essential cause of tuber-ılosis—i.e., infection by the tubercle bacillus—ould not be eradicated by administrative measures, r public education, or medical skill, in a community mong whom the disease had become endemic. This, owever, did not mean that clinical tuberculosis rould not continue to diminish in severity or in ıcidence or in both. If he was right in supposing hat there was much undetected infection, environ-ıental conditions favourable to its spread were of reat importance. The prime factors in the causa-ion of tuberculosis were: poverty, principally hrough its effect upon nutrition; deficiency of diet; ınd overcrowding. Meteorological conditions had ıot proved to be of great importance except in so far ıs an inclement climate drove people indoors.

At the afternoon session Dr. L. S. T. **Burrell** London) discussed the theory that ordinary tuber-ulosis of the lung, or the so-called adult type, was ıot a new infection caught from some other patient, but was a reactivation of old disease contracted in hildhood—an endogenous rather than an exogenous nfection. He thought this theory was partly true, but it left many facts unexplained. No one would leny that a tuberculous focus might exist in the body without producing any impairment of health, and that after lying latent for many years such a lesion might break out and cause active disease, but this did not prove that exogenous infection could not also occur. He believed that tuberculosis might spread in one or more of four ways: (1) By direct spread from the lesion to surrounding parts; (2) by infection or reinfection from outside; (3) by endogenous spread from a lesion in the body through the lymphatics; (4) by endogenous spread through the blood stream. In his opinion, the majority of cases of adult tuberculosis were the result of an endogenous spread from some previous lesion, but quite a considerable number were due to reinfection, and he regarded it as dangerous to expose anyone of whatsoever age to a massive infection.

The Part Played by Environment

Dr. G. C. M. **M'Gonigle** (M.O.H., Stockton-on-Tees), speaking on environment and tuberculosis, gave a warning against the indiscriminate re-housing of families living in poverty, illustrating his remarks by the results of a survey carried out not long ago in Stockton-on-Tees. Here a re-housed section of the population showed a 50 per cent. increase in the death-rate in the five-year period after their removal to hygienic surroundings with immeasurably improved housing conditions. The increased death-rate was seen in the number of deaths from measles, cancer, heart conditions, bronchitis, and pneumonia. It had been shown almost beyond any shadow of doubt that the increased death-rate was definitely correlated with a diminished expenditure on food, the speaker concluding by saying that it was obvious that if good environmental conditions were obtained only at the expense of a reduction of food purchasing power far below the safety line, the advantages obtained from good housing would be more than outweighed by nutritional depreciation, with a resulting adverse effect upon tuberculosis.

Dr. **William G. Savage** (County M.O.H., Somerset) confined his remarks to tuberculous infections in which the bovine tubercle bacillus was implicated. The high incidence of tuberculous infections in dairy herds, which could not be put below 40 per cent. as a whole, indicated that factors were at work reducing the natural resistance against tuberculosis in the bovine species. These factors included the severe continued drain to which a cow was subjected under economic conditions, 2000 gallons of milk being yielded yearly where a wild cow under natural conditions gave only about 150 gallons a year. Faulty feeding and faulty environmental conditions were other factors, a fourth factor being the continued prevalence of sources of infection. He did not look upon the bovine bacillus as any less virulent to man than the human type, and though it did not seem probable that human environmental factors played much part in affecting the amount of bovine tuberculosis disease, he suggested that much more knowledge was needed as to the factors which influenced infection in man from tuberculous milk.

Dr. **Noel D. Bardswell** (principal assistant medical officer, L.C.C.) emphasised the supreme importance of environment in raising and maintaining resistance to tuberculosis, as exemplified in sanatoria generally and in village settlements, such as those of Papworth and Preston Hall. The effect of bad environmental conditions, mainly in the prevalence of long hours of work and insufficient rest, was seen in the lack of resistance to tuberculosis shown by young women workers in London.

Dr. F. C. S. **Bradbury** (assistant tuberculosis officer, Lancashire County Council), in a statement regarding the association's inquiry into the high incidence of tuberculosis in the Tyneside area, explained that an attempt had been made to include within the scope of the inquiry as many factors as possible which might have a bearing upon tuberculosis, provided they appeared capable of correct ascertainment within a reasonable time. Three factors appeared to be principally concerned in the high incidence of tuberculosis in Jarrow: under-nourishment, overcrowding, and a relatively high susceptibility of the population to tuberculosis. These three characteristics probably played a part in favouring tuberculosis in other parts of the country also, and in view of their importance the speaker proceeded to analyse each, to bring out in what way they were implicated in the causation of tuberculosis. With regard to under-nourishment, details had been studied in respect of particular foodstuffs, and it was clear that tuberculous families consumed per head less meat, butter, and fresh milk (and more bread) than non-tuberculous families; and that of these four foodstuffs, insufficiency of milk showed the closest relation to tuberculosis. With regard to overcrowding, the evidence submitted definitely showed this to be an important causal factor of tuberculosis in Jarrow, where the overcrowding occurred largely in unwholesome tenement dwellings. Individual susceptibility as a third cause was brought out very clearly in the Tyneside inquiry, mainly in a comparison between the case-mortality among the Irish and among the English when living under closely comparable conditions. It was clear that something more than environment was involved, in view of the greater case-mortality among the Irish, and there appeared to be conclusive evidence that the missing factor was a greater susceptibility of the Irish than of the English to tuberculosis.

Some Local Inquiries

Dr. **Herbert D. Chalke** (assistant tuberculosis physician, Welsh National Memorial Association) gave a brief résumé of a report recently submitted to the medical committee of the King Edward VII. Welsh National Memorial Association regarding an investigation into the causes of the continued high death-rate from tuberculosis in certain parts of North Wales. It was noticeable that in certain Welsh counties the decline in the tuberculosis death-rate was not taking place as rapidly as in the country as a whole, the death returns further showing that the disease was unequally distributed over the different districts within those counties. Thus, although Carnarvonshire had the highest tuberculosis death-rate in Wales, in one of its districts—Gwyrfai—the rate was more than double that of the whole county. Analysing the conditions obtaining at Gwyrfai, the speaker said that the district was mountainous, and had a heavy rainfall; the soil was deficient in calcium, and the subsoil impervious; housing and sanitation fell below normal standards; most of the dwellings were damp; the dietary of the people was deficient in fresh meat, green vegetables, fruit, and milk; tinned foods, bacon, and tea being consumed to excess. There was little outdoor recreation, and frequent meetings in overcrowded poorly ventilated chapels provided further opportunities for the spread of the disease. Such factors favoured the maintenance of the tuberculosis death-rate at a high level, but many of them were capable of elimination, which should result in a marked diminution in the incidence of the disease in that part of Wales.

Miss CICELY MILNER (secretary, Paddington Tuberculosis Dispensary) described an inquiry now being carried out in Paddington with regard to the environment in which every patient who had passed through the hands of the tuberculosis dispensary workers had lived or was still living. By means of the same statistical cards they were able to tabulate the percentage of success they had achieved in their efforts to improve the environmental conditions of their patients, and also the amount of coöperation and response their efforts had received. Among a number of interesting points elicited in this still uncompleted inquiry was the fact that few of the young adult cases had come under the care of the dispensary as children; and also that only an extremely small percentage of delicate children and children from infected homes who attended the open-air school in the borough of Paddington had developed active pulmonary tuberculosis in later life.

Dr. W. T. MUNRO (Glenlomond Sanatorium) said that two factors concerned in invasion by the tubercle bacillus were relatively fixed quantities—the host and the bacilli—and the effects should proceed along well-defined lines. But throughout the life of the infected individual a third factor, environment, would always be operative and might shape the whole pathogenesis of disease. The speaker briefly reviewed some of the environmental factors in disease production, including the occurrence of pulmonary tuberculosis as a sequela of other debilitating diseases, and the effects of trauma and of defective nutrition.

Dr. T. W. WADE (medical officer, Welsh Board of Health) gave a number of statistics as to the occupational mortality from respiratory tuberculosis in Wales, showing among other things that the four counties of highest mortality-rates were four western counties, and that of the six counties of lowest mortality-rates five were coal mining. Two counties, Caernarvon and Merioneth, showed high death-rates in young adult life for males and females, and both exceptionally heavy late age mortality-rates for males, the latter being due to the slate and stone industries in each of those counties. Although the death-rate in the coal-mining counties from respiratory tuberculosis was low—as was the case in other coal-mining areas throughout the world—the death-rates from bronchitis and other respiratory diseases were high. Dr. Wade added that persons exposed to injurious dusts not only inhaled the dusts but also swallowed them, and generally those occupations exhibiting high mortality-rates from respiratory diseases resulting from exposure to injurious dusts also exhibited high mortality-rates from cancer of the stomach.

Miss K. L. BORNE, S.R.N. (matron, Papworth Village Settlement), had analysed particulars of the home conditions of 50 women patients, aged 16 to 25, undergoing treatment in a sanatorium. A high percentage of these patients came from poor homes with overcrowded conditions which directly favoured infection. The decrease in the incidence of tuberculosis could be attributed to many factors, such as the education and assistance provided by the numerous State, municipal, and private organisations, better housing and slum clearance, and village settlements which provided means of livelihood with continued after-care for patients and their dependents.

Housing Conditions

Dr. R. J. PETERS (senior assistant M.O.H., Glasgow), discussing the question of housing in relation to tuberculosis, showed the effects of housing conditions in Glasgow upon the incidence of both pulmonary and non-pulmonary forms of the disease. After analysing various statistics on this point he drew the following conclusions. Tuberculosis was more frequent (by 65 per cent.) as a recognisable disease among the occupants of small houses than among those more favourably situated. The difference in fatality was even more marked (341 per cent.). The factors responsible for this were principally those associated with poverty generally and a lower standard of life, the specific influence of overcrowding being much less than might be expected. With regard to cases of traceable familial infection, the size of the house and overcrowding did not appear to have a marked influence in their production. The speaker insisted, however, that specific study and application of new discoveries in the epidemiology, immunology, and treatment of tuberculosis must go hand in hand with general measures of social amelioration.

Mr. J. E. TOMLEY (clerk to the Montgomeryshire Insurance Committee) showed charts illustrating the tuberculosis mortality-rates for each urban and rural district of the counties of Caernarvon and Merioneth during the six-year period 1925–30. It was through the disclosures made by these charts that the council of the Welsh National Memorial Association entrusted to Dr. Chalke the duty of making a detailed investigation into the causes of the continued high death-rate from tuberculosis in those parts of North Wales.

Dr. H. MIDGLEY TURNER (clinical tuberculosis officer, Sheffield) said that because the results of infection under bad environmental conditions in children were not so soon obvious, there was in some quarters a tendency to disparage organised and intensive work among such children. The consequence of bad environmental conditions for children was to allow the development of large reservoirs of living tubercle bacilli within the child's lymphatic system, and when adolescence was reached and the retentivity of the lymphatic system for tubercle bacilli was impaired, serious infiltration pulmonary tuberculosis was liable to develop. The childhood period when parenchymatous pulmonary infiltration was uncommon should be thankfully accepted as a breathing space in which work could be done to prevent the occurrence of sputum-positive tuberculosis later.

REVIEWS AND NOTICES OF BOOKS

Text-book of Midwifery in the Tropics

By V. B. GREEN-ARMYTAGE, M.D., F.R.C.P. Lond., F.C.O.G., Professor of Midwifery and Gynæcology, Calcutta Medical College; and P. C. DUTTA, M.D., F.R.C.S., D.G.O., Captain, I.M.S. Calcutta: The Book Company. 1933. Pp. 306. 10*s.* 6*d.*

IN the foreword to their text-book on midwifery the tropics Dr. Green-Armytage and Dr. Dutta int out that every problem of diagnosis and treat-ent is altered for the doctor who goes from England practise obstetrics in the East. They have ovided a guide in the form of a synopsis dealing ncisely but thoroughly with pathology, symptomato-gy, and treatment. Most of the information is e same as that given in the ordinary English text-ok, but certain subjects are dealt with more fully an is thought necessary in a book of this size for se in England. Such subjects are obstructed bour, ruptured uterus, and puerperal sepsis, which e commoner and more serious problems in the ast. Tropical diseases such as kala-azar, malaria, ysentery, and sprue are given among the complica-ons of pregnancy; and osteomalacia, exceedingly re in England, is mentioned as being fairly common Northern India. Pelvic contraction is very well iscussed, and this section is illustrated by diagrams howing methods of estimating the amount of isproportion between the fœtal head and the pelvis. etailed instructions are given for the performance f all necessary obstetric operations, the methods escribed being those particularly suitable for the ropics. The book can be commended to those ractising midwifery in the East.

Light Therapy

By FRANK HAMMOND KRUSEN, M.D., Director of the Department of Physical Medicine, Temple University School of Medicine, Philadelphia. With foreword by JOHN A. KOLMER, M.D., Dr.P.H., D.Sc., Professor of Medicine. Temple University School of Medicine. New York: Paul B. Hoeber. 1933. Pp. 186. $3.50.

Dr. Krusen's handbook is concise and readable. It gives an accurate, clear account of our knowledge of the clinical applications of ultra-violet and infra-red radiations. The descriptions of apparatus employed and the illustrations are excellent, and the section dealing with physical considerations is adequate. The physiology of the subject receives less space than it deserves and this part could well have been enlarged at the expense of that dealing with the technique of administration. First-hand knowledge of apparatus, used under expert guidance, remains the only satisfactory way of acquiring technique. In the clinical section diseases are grouped under the heading of systems. Long lists of various conditions for which radiations have been prescribed are appended, and the author points out those conditions which are more generally recognised as suitable for radiation treatment and are known to benefit from this treatment. The reader will agree with Prof. Kolmer, who has written a preface to this handbook, that Dr. Krusen has not overstated the case, and that in his anxiety to avoid undue enthusiasm "he has been a bit too modest in evaluating light therapy in terms of his own experience." The section dealing with local irradiations does not stress sufficiently the need of varying dosage according to the condition treated. It is regrettable that the Finsen-Reyn method of treating lupus should receive so little notice; its cosmetic results are considered by many experienced workers to be superior to those obtained by the use of other lamps.

Dr. Krusen's book contains a good index and a very complete list of references.

Diphtheria Immunisation—Propaganda and Counter Propaganda

Compiled by J. GREENWOOD WILSON, M.D., M.R.C.P., D.P.H. Preface by J. GRAHAM FORBES, M.D., F.R.C.P., D.P.H. Dewsbury: Joseph Ward and Co. 1933. Pp. 117. 2*s.* 6*d.*

THIS pamphlet is essentially a record, round by round, of a fight between the medical officer of health of Dewsbury and the antivaccinationists when diphtheria prophylaxis was introduced into the borough. The medical reader will side with the medical officer of health, but will have to admit that the opponents' sallies sometimes tell. At any rate, both sides show good temper, courtesy, and a sporting spirit. Though the main title of this little book is Diphtheria Immunisation, its subtitle, Propaganda and Counter Propaganda, is the more descriptive of its contents. Science and advertisement are brought together in a rather provocative way. We may be convinced of the purgative property of pills, yet may find it difficult to fill in the steps which prove them worth the price charged for them. "The first essential in propaganda," says Dr. Wilson, "is pithiness," and what follows has, on both sides, this and other merits of good propaganda; but the section of the book which deals with diphtheria immunisation suffers from undue compression; something may be claimed for the point of view of that friend of St. Augustine "who being a most diligent and acute inquirer in difficult subjects . . . hated exceedingly a brief answer on a great question."

The record is interesting to read. It gives a popular but on the whole accurate account of diphtheria prophylaxis, it provides a good model of effective public health propaganda, and last, perhaps best, it gives a vivid picture of an energetic and enthusiastic M.O.H. at work. It is such men as Dr. Wilson who get things done in matters of public health.

Blood Pictures: an Introduction to Clinical Hæmatology

Third edition. By CECIL PRICE-JONES, M.B. Lond. Bristol: John Wright and Sons. 1933. Pp. 73. 6*s.* 6*d.*

"An opinion of a blood specimen should never be formed from only one or two characteristics, but, as far as possible, from all the aspects of a complete blood picture." This statement by such an authority as Dr. Price-Jones should be remembered in the face of present-day tendencies to automatic diagnosis and to the drawing of wide deductions from the examination of stained films alone. This book gives a clear and concise demonstration of the value in diagnosis of a complete examination of the blood picture. Dr. Price-Jones has definite views on the limits of the help obtained from this source alone; only in those conditions known as "blood diseases" should a diagnosis be based on a blood picture, irrespective of other signs and symptoms. Keeping his feet firmly planted on the rock of established fact, Dr. Price-Jones gives precise details of diseases in which the examination of the blood may be of some assistance. His scheme for the reports on blood examination and the method of demonstrating the deviations from normal might well be generally adopted. Both clinicians and laboratory workers should study this book, the former in order that by unreasonable demands they may not lead their pathological advisers into uncharted waters, and the latter to learn how best the information garnered from a complete blood examination may be set out.

La phrénicectomie

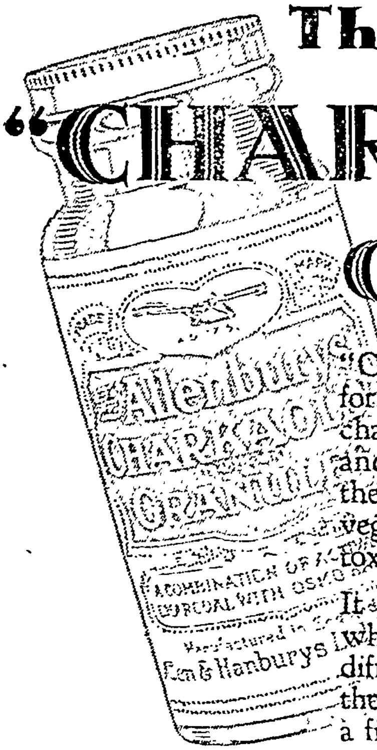
By L. Bérard, Professeur de Clinique chirurgicale à la Faculté de Médecine de Lyon; F. Dumarest, Médecin en chef du Sanatorium Mangini à Hauteville; Desjacques, Chirurgien des Hôpitaux de Lyon. Paris: Masson et Cie. 1933. Pp. 114. Fr.30.

The pleasurable anticipation with which one opens a book on this subject from these authorities is fully realised in the reading. Prefatory chapters on the anatomy of the nerve and the anatomical variations and on the physiological basis for phrenicectomy are followed by an account of the technique. The authors prefer the operation of evulsion of the nerve, which is described and illustrated in detail. In certain cases, however, such as pleurisies, empyemas, those in which a superficial lung lesion close to the mediastinum is suspected, and those in which great resistance to evulsion suggests that the nerve is caught up in mediastinal adhesions, the radical operation of Goetze is preferred. The chapter on incidents, accidents, and complications serves to remind the reader that phrenicectomy is not an operation entirely devoid of immediate risks or of post-operative sequelæ. The two succeeding chapters on the "post-operative cure" and the "mode of action" of the nerve are highly instructive, as is also the one on "indications." This last is, however, curiously incomplete. The value of phrenicectomy in the treatment of various symptoms, such as the dragging pains and aches of pleurisies, of the irritating diaphragmatic cough due to adhesions, of palpitations due to pleuro-pericardial adhesions, and even of dyspnœa of a certain type and of vomiting, are almost overlooked. On the other hand, in the comparison of phrenicectomy with artificial pneumothorax, the comparative merits and disadvantages of either method, and the indications for the nerve operation in place of artificial pneumothorax are well brought out. It is a pity that although the authors have observed nearly 700 cases of phrenicectomy, no attempt has been made to classify them or to show the proportion of successes and failures, both as regards the paralysis of the diaphragm and the late clinical results of the operation.

British Journal of Children's Diseases

To the April–June issue (Vol. XXX.) Dr. Catherine Chisholm contributes a paper on the Incidence of Rickets in Manchester, where she shows there is a considerable average percentage (7·5) of severe rickets, varying with the different areas of the town and different periods of the year in children not under welfare supervision. A further number up to 21 per cent. of the infants are on the borderline of vitamin deficiency showing at times slight evidence of rachitic changes. The peak of the incidence of rickets occurs at the end of spring or early summer, but may fall much later in the year than is generally expected. The fall in the incidence in the late autumn in Manchester is considerable compared with the amount of radiation at that time and is probably due to the cumulative protection afforded by summer and autumn sunshine. Dr. Chisholm thinks that the incidence of rickets under present conditions of infant welfare mainly depends on the capacity of the mother for motherhood and urges that potential mothers should be trained in child care and dietetics. —In her paper on the Aspiration Treatment of Laryngeal Diphtheria, Dr. Olga F. Tregelles describes her experience of this method which has been in use at the North-Western Fever Hospital for the last two and a half years. The series of cases though small supports the conclusions of the American observers in showing that the incidence of operation for laryngeal diphtheria is less if aspiration is performed and that the death-rate following operation is also less.—Dr. L. J. M. Laurent reports a case of Extensive Purpura Simplex following Measles. The patient was a male infant aged 8 months, who on the twentieth day of a mild attack of measles developed extensive purpura of the face, arms, and thighs, without any hæmorrhages from the mucous membranes. No improvement followed intramuscular injection of antistreptococcal (scarlatinal) antitoxin, but 24 hours after intramuscular injection of 50 c.cm. of fresh uncitrated blood from the mother the lesions ceased to extend and in six days entirely disappeared. The case is remarkable for the comparative rarity of purpura following measles, the absence of thrombocytopenia, and the rapid disappearance of the lesions after injection of maternal blood.—Dr. W. Gunn records a Case of Rubella Complicated by Purpura Hæmorrhagica. The patient was a girl aged 9½, who had been subject to mild attacks of epistaxis since the age of 4 years. Her mother had had similar attacks from her eighth to fourteenth year, but the rest of the family, consisting of the father, three brothers, and a sister, had never had any hæmorrhagic symptoms. On the third day of disease petechiæ appeared in each supraclavicular and antecubital fossa and were succeeded by severe attacks of epistaxis. Recovery ensued after intramuscular injection of 20 c.cm. of hæmoplastin, followed a few hours later by 50 c.cm. of the mother's whole blood. In the onset of the purpura directly after the decline of the rubella rash, the thrombocytopenia, and the prolonged bleeding-time the case closely resembled that published by Pitten, the only other example on record of rubella complicated by purpura hæmorrhagica.—Dr. E. W. Goodall reports a Case of Scarlet Fever followed by Meningeal Hæmorrhage. The patient was a boy aged 9, in whom symptoms of meningeal hæmorrhage developed a month after a mild attack of scarlet fever. Death preceded by convulsions took place on the third day. The necropsy showed extensive subdural hæmorrhage on the left side extending from about one inch in front of and behind the fissure of Rolando and a slight hæmorrhage in a similar position on the other side. Apart from two small hæmorrhages on the epicardium and aorta the other organs were normal. Dr. Goodall had never seen or read of a similar case.—The abstracts from current literature are devoted to treatment.

Construction and Maintenance of Institutions. The Minister of Health has appointed Dame Janet Campbell, M.D., and Miss F. Barrie Lambert, M.B., to be additional members of the Departmental Committee which is to consider and report on the cost of construction and maintenance of various classes of public buildings provided by local authorities. (See The Lancet, July 15th, p. 14.)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THE LANCET

LONDON: SATURDAY, JULY 22, 1933

MEDICAL PARTNERSHIP IN THE U.S.A.

THE Bureau of Medical Economics of the American Medical Association has recently published[1] a study of "private group practice" in the United States, based upon the replies made to a questionnaire sent to 1949 secretaries of county medical societies. "Group" in this inquiry designated three or more physicians who had joined for practice and who owned certain kinds of equipment and employed lay assistants in common. The description is admittedly very indefinite and, in fact, classification depended upon a number of details of organisation and operation. The looseness of definition naturally results from the fact, shown by the inquiry, that there exists in America no clearly defined or standardised type of group practice. Only in a minority of instances was there found a body of selected specialists, with adequate scientific equipment, which could be regarded as constituting a fairly comprehensive medical unit, capable of offering a "complete medical service," although at times exaggerated claims for group practice have been based on the presumption that such comprehensive groups are typical.

It was noted that a disproportionately large share of the 239 groups, which were studied in some detail, were concentrated in the smaller cities, cities with a population of under 50,000, which may in part represent an effort to meet in such places a lack of laboratory and hospital facilities. Also it is not unlikely that greater publicity and prestige may be attached to the formation of a group in the small town rather than in the metropolis. The average size of the groups proved to be six, though nearly two-thirds of them consisted of three, four, or five members. In recent years the figures collected suggest that their size has tended to decline, and there has been, as well, a slowing up in the rate of formation of new groups. This, it is thought, may well be related to the extremely rapid growth in hospital and laboratory facilities during the last decade so that a much larger percentage of individual physicians can obtain access to these without the necessity of forming a group, and can thereby give service in no important way differing from that given by even the best organised and equipped groups. A very large percentage of the groups included a member specialising wholly or partially in surgery, about half included a specialist in internal medicine, and less than one-half reported general practitioners as members. There is, therefore, little tendency for groups to organise around general practitioners, while the preponderance of surgeons raises the question, the Bureau suggests, "of whether there may not be some justice in the charge sometimes made by critics of group practice that many groups are formed only to act as 'feeders' for successful surgeons." The data suggest that there is an increasing tendency to include dentistry as one of the specialties of group practice.

In distribution of income among members the forms most commonly observed were on the basis of fixed percentages, equal divisions or salaries, and in relatively few cases were incomes determined by individual earning. One of the questions most frequently raised in regard to group practice is whether pooling of the expense for equipment and operation reduces the percentage of gross income expended for these purposes. Information supplied by 142 groups showed that the net income distributed to physicians averaged about 60 per cent., and there was no indication that increasing the size of the group reduced the overhead charges relative to income. Comparison of these results with those of a study of incomes and expenses in individual practice led to the conclusion that from 7 to 9 per cent. *less* of the money paid by the patient goes to the physician in group than in private practice, which confirms the opinion of a majority of secretaries of the county medical societies that group practice does not afford a method of reducing the cost of medical care. There is apparent, therefore, no support to the argument that has been advanced, based on commercial analogies, that greater economy of operation and resulting superior competing power must inevitably cause group practice gradually to supplant individual practice.

THE INHERITANCE OF BLINDNESS

A REPORT[1] on hereditary blindness by the Prevention of Blindness Committee, in the preparation of which the late Mr. J. HERBERT FISHER took a large share, lays stress on the danger of assumptions that may not be warranted by the facts. The eugenist is apt to argue that any person known to be blind from a disease in which heredity is a factor in its causation should never become a parent, but this, the committee opines, is going too far, and it proposes instead these two principles:

> (1) If a member of a stock in which there is definitely inheritable disease causing blindness, even if the disease is not manifest in his or her case, marries, he or she should be strongly urged to consult an ophthalmologist who, with the assistance of a pedigree, would advise as to abstention from parenthood.
>
> (2) Unless there is medical evidence to show that the case does not fall within the hereditary class, a blind person contemplating marriage should seek the advice of a competent ophthalmologist before marriage, in view of the complex nature of the problem and the serious handicap imposed upon

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[1] Jour. Amer. Med. Assoc., 1933, pp. 1605, 1692, 1773.

[1] Standing Committee of the Union of Counties Associations for the Blind, 66, Victoria-street, London, S.W.

the children of persons suffering from inheritable eye disease. The ophthalmologist will no doubt obtain a pedigree, and if necessary consult a genetic expert.

The committee argues that a consultant is not justified in giving definite advice against parenthood unless his opinion on the disease, qua disease, is reinforced by the evidence of a pedigree applying to the particular case. We have no sufficient knowledge concerning the extent to which diseases of genetic origin may occur sporadically, and although some pedigrees can be cited showing a large proportion of the descendants of one man or woman blind—for instance, from retinitis pigmentosa—yet there are other instances of the disease in which no hereditary factor can be proved. On the other hand, it is sometimes possible for an ophthalmologist in consultation with a genetic expert to state, for any individual whose case has been correctly diagnosed and whose family history has been carefully investigated, the degree of risk of blindness in succeeding generations which parenthood would involve. There are a large number of diseases which may cause blindness in which heredity is a factor. The two most important are retinitis pigmentosa and hereditary optic atrophy (Leber's disease). In these the mode of inheritance is very different. Retinitis pigmentosa, though rather commoner in males, may occur in either sex, and may be inherited through either. Leber's disease is practically confined to males, although it is inherited almost exclusively through females. Hence a male of adult age belonging to a stock in which Leber's disease exists, if he himself is exempt, is very unlikely to transmit it. There are a number of other diseases which may cause blindness or weak sight in which heredity is a factor of greater or less importance. Such are albinism, aniridia, congenital and lamellar cataract, coloboma of the iris and choroid, and many others, including glioma of the retina.

The report calls for better statistics of any family in which such diseases are met with, and an appendix gives the particulars required for drawing up a pedigree. This requires enthusiasm and boundless patience in the investigator, such as the late EDWARD NETTLESHIP gave to it during the latter part of his life. His Bowman lecture of 1909 includes pedigrees of congenital cataract, retinitis pigmentosa, Leber's disease, albinism, and total colour blindness which have served as a model to succeeding investigators. Not all of these conditions involve certifiable blindness, but for the purpose of any such investigation partial blindness should be included, and from the point of view of the committee pedigrees in which only one individual is affected are just as important as those in which several are. Even in such diseases as senile cataract and glaucoma there may be an hereditary factor in the causation, and the rôle of heredity in myopia is now well recognised. There is no reason to believe, however, that myopia in which the hereditary factor is strong is more likely to cause blindness than myopia in general.

TUBERCLE OF THE NERVOUS SYSTEM IN CHILDREN

THE extreme variability of the clinical picture of cases summarised as "tuberculous meningitis" is well recognised by clinicians. While in general this diagnosis is attached to those in which signs of cerebral irritation are many and focal signs are few, yet it is not uncommon for a child which at one time presented some clear-cut localising signs of cerebral disease to show, post mortem, evidence of widespread tuberculous involvement of the brain. Exceptions of this kind complicate the important differential diagnosis between cerebral abscess and tuberculous meningitis, and at a time when the valuable assistance afforded by the chloride content of the cerebro-spinal fluid was not available, patients sometimes underwent operations from which little could be expected.

The inconstant clinical picture is naturally dependent on pathological changes whose distribution and nature are also very variable, and which are inadequately represented by the term meningitis. Drawing from a material which appears to be richly provided with tuberculosis in the young, Prof. V. P. JOUKOVSKY and Prof. V. N. ROUSSKIKH, of Smolensk, have compiled an instructive monograph [1] on the various tuberculous manifestations which they have observed in the nervous system. The value of this work is much increased by the fact that detailed accounts of the clinical course of the disease appear in conjunction with the histological descriptions, and can easily be related to them. They show very clearly that tuberculous involvement of the nervous system is by no means confined to the meninges of the brain and to the choroid plexus; that the typical meningeal form is prone to invade the spinal meninges; also that focal areas in the brain substance are often affected, whether by thrombosis, miliary tuberculous infiltration, or the formation of tuberculomata. These findings recall the interesting observations of A. R. RICH and H. A. MCCORDOCK,[2] which suggested that diffuse tuberculous meningitis is not a direct result of blood-borne infection, but arises from discharge of tubercle bacilli into the cerebro-spinal fluid from adjacent caseous foci.

The first section of the monograph is devoted to the classical form of the disease: a leptomeningitis associated with marked involvement of the choroid plexus. The presence of tuberculous changes in the spinal meninges of these cases is well demonstrated, and it is suggested that the condition is characteristic of childhood, considering how rarely it was found by A. GHON and others in adults. In the next section a "meningo-thrombotic type" is described, in which thromboses, mainly in vessels supplying the subcortical areas, are associated with hæmorrhages and necrotic foci. It is pointed out that the thrombosis is not merely a terminal event, as it may be in marasmus and other cachectic states, but follows on a tuberculous arteritis with thickening of the adventitia. In the third section cases of the "mixed type"—meningitis accompanied by miliary tubercle of the brain—are described. The combination of general signs of meningeal irritation and focal signs such as localised rigidity are clearly correlated with the post-mortem findings, which are admirably illustrated by photographs. Fuller description is given to a series of cases which exhibited localised tuberculous infiltration and areas of focal necrosis in situations such as the internal capsule and the basal ganglia. Here the patient was usually quite a young child, and the histories showed a high incidence of infectious or respiratory disease—particularly measles—contracted shortly before the onset of the meningitis. The appearances suggested that the tuberculous foci were antecedent to the measles, and that the effect of the latter had been to favour the spread to the meninges. In the opinion of JOUKOVSKY and ROUSSKIKH, children who are subjects of the "exudative diathesis" are the ones in whom this sequence of events is most likely to take place. The final section, on the formation of tuberculomata, is of interest to English readers because it describes a state of affairs which existed in this country some 20 years ago, and will remind them of the extent to which the incidence of such conditions has diminished. Tuberculous masses, either solitary or multiple, seem to be common in Smolensk, and the diagnosis of cerebral new growths in children is complicated by the high incidence of these lesions which we now so rarely see.

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[1] Acta Pædiat., 1933, vol. xiv., Suppl. II.

[2] Bull. Johns Hopkins Hosp., 1933, lii., 5; see THE LANCET, 1933, i., 651.

The monograph contains some interesting speculations which do not lend themselves to abstraction, and both clinicians and pathologists should find it worthy of attention.

ANNOTATIONS

WAR AND THE UNCONSCIOUS

MOST people are prepared to admit that war is no longer useful to mankind. Many go further and believe that it would fall into disuse if less trouble were taken on keeping up its machinery—if it were made harder, rather than easier, to unsheathe sharp swords at moments of emotion. This blunting of toys in the hands of political children is the objective of most leagues and societies which are trying to abolish war, but it is arguable that they would spend their energies and money better in examining the reasons why the children refuse to grow up. Most of us regard psychology itself as an *enfant terrible* rather than a little angel child likely to lead the world back to peace and prosperity, but Dr. Edward Glover, in his new book,[1] is able to make out a convincing case in favour of psychological investigation into the ætiology of war. To most of his suggestions one may apply Chesterton's remark on another subject: they will not be tried and found wanting; they will be found difficult and not tried. At the same time he has made a genuinely constructive contribution towards one of the most important of all subjects. In applying the psychology of the individual to the activities of the group he reaches illuminating conclusions. Not only is the fanatical pacifist found to be of much the same stuff as the diehards, but the most enlightened efforts for peace are seen to be liable to break down at the crucial moment from the activities of the masochistic traitor within the camp. After a general consideration of the rôles of sadism and masochism in producing war-tendency, Dr. Glover raises the question how far, and in what ways, this tendency can be dealt with. The present state of affairs, in which there is little—least of all the civil service examinations—to prevent a neurotic or borderline lunatic from holding a position of responsibility in times of crisis is one which might, he thinks, be remedied by a rational system of selection. It is probable, however, that individual responsibility for war is almost always relatively unimportant as compared with the war tendency of the group represented, and to produce the necessary change of heart he would have us begin not on the playing fields of Eton or in week-end conferences at Cambridge but in the nursery. To eliminate sadism and guilt from the parents' attitude to the child is certainly a large order, but it is not an order of altogether fantastic proportions; in view of the proved futility of most orthodox peace propaganda in face of the first breath of war scare, it may even some day be attempted as a large-scale experiment. In conclusion, Dr. Glover devotes some 30 pages to an outline of possible research on the problem of war, taking as premisses that there are individual and social advantages to be gained by the abolition of war, but that nevertheless these are periodically offset by advantages to be obtained through a war situation, and that in the estimation of advantages conscious judgment is not necessarily a decisive factor. The investigation includes the preliminary collection of data with regard to adult war (both indirectly from the history of primitive, barbaric, and civilised groups, and directly from a study of the reactions of individual combatants), and a similar study of group and individual mechanisms in adolescent, child, and infantile "war." In his scheme of research in the realms of psychology and psychological anthropology Dr. Glover emphasises the need for experiments over a long period, extending, unfortunately, beyond the working life-span of one investigator. It would be hard to find a more stimulating and constructive treatment of a problem of universal interest. His humour is a deftly wielded hammer with which he drives home his points, and the reader is lucky if he escapes without a few raps over the knuckles.

MEGALOCYTIC ANÆMIA AND DISEASES OF THE LIVER

Wintrobe and Shumacker[2] have lately collected the reported cases of megalocytic hyperchromic anæmia associated with cirrhosis of the liver, and added the details of an interesting series they have themselves investigated. Megalocytosis may occur in a variety of liver disorders—in cirrhosis, in both primary and secondary carcinoma, in acute catarrhal jaundice, and in chronic passive congestion of the liver associated with cardiovascular disease. In describing a case of megalocytic anæmia associated with cirrhosis, at the Royal Society of Medicine last year,[2] Dr. Gordon Goodhart emphasised the fact that though the Price-Jones curve was shifted to the right there was no evidence of increased anisocytosis. Megalocytosis of a uniform type seems to be common to all this group of anæmias, and seems to differentiate them from Addisonian pernicious anæmia. There is also no poikilocytosis. The anæmia is usually moderate in degree and there may be rapid and spontaneous blood remissions unaccompanied by any clinical improvement. A clear-cut response to liver therapy appears to be exceptional, and in certain cases both free hydrochloric acid and Castle's intrinsic factor may be present in the gastric juice. Wintrobe and Shumacker suggest that the megalocytosis is not due to physico-chemical factors altering the red cells. The presence or absence of increased bilirubin in the serum does not seem to influence red cell size, at least in vivo. They advance the interesting hypothesis that the anæmia is the result of defective storage in the liver of the principle effective in Addisonian pernicious anæmia, due to destruction of liver tissue, or to a combination of incomplete storage and disordered gastric secretion. Such a hypothesis does not however account for the absence of anisocytosis, which is usually found in anæmias due to a deficiency of the factor effective in pernicious anæmia. It is clear that the significance of variations in red cell size are little understood and will repay further investigation.

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[1] War, Sadism, and Pacifism. Three Essays. By Edward Glover, M.D., director of scientific research, London Institute of Psycho-analysis. London: George Allen and Unwin. 1933. Pp. 143. 3s. 6d.

[2] Wintrobe, M. M., and Shumacker, H. S.: Bull. Johns Hopkins Hosp., 1933, lii., 387.

CONVENIENT BUT POISONOUS SUBSTANCES

THE remarks of the coroner and the rider of the jury at a recent inquest on a young woman student who was stated to have eaten "six sticks of solidified methylated spirit" call attention to a danger which has arisen from the introduction into common use of a compound which, until a few years ago, was only known in the laboratory. Since ethyl-alcohol melts at –114° C. and methyl-alcohol at –97·1° C. it is unnecessary to say that the "sticks" eaten were not solidified methylated spirit, but the very convenient "meta fuel," which, first introduced in Switzerland as a clean and safe substitute for methylated spirit, especially for travellers who wish to make early morning tea or to heat irons, is now "obtainable of all chemists." This fuel, which smells slightly of ordinary acetaldehyde, is a polymer of that substance, formed by the union of four molecules: $4\ C_2H_4O = C_8H_{16}O_4$. The compound formed by the condensation of three molecules, paraldehyde, is well known in medicine as a narcotic, for which purpose it was used more than 30 years ago. Of the three compounds, the unpolymerised acetaldehyde is a very volatile liquid in winter and a gas in summer, as it boils at 20·8° C. (69·4° F.); paraldehyde is a rather viscous liquid, boiling at 124° C.; and metaldehyde, a solid decomposing slowly into aldehyde at ordinary temperatures—hence the smell and the advice not to keep it in a warm place. At 114° C. it sublimes without melting and at a higher temperature rapidly and completely goes over into aldehyde vapour so that it ignites readily when a light is brought near it, giving off a fair amount of heat (its heat of combustion seems not to have been determined, or at least not yet to have got into works of reference). The convenience of a white solid giving off only a trace of vapour at ordinary temperatures is very great, and "metas" have been sold freely, with the advice on the package that children should not be allowed to eat them. It now appears that enough (about 25 g.) to boil water for six small cups of tea is a fatal dose for an adult. This is not very surprising. Aldehyde itself is not taken internally, except in small amounts in alcoholic drinks and perhaps some fruits, and our knowledge of chemical constitution is not yet sufficient to reason from the harmless paraldehyde to the very different meta compound. No sane adult would eat "metas" except with a view to suicide. To call attention on the package to its toxic properties would seem merely to advertise it as a convenient poison, whilst if its sale is to be restricted so should be that of coal-gas, which is largely resorted to by those who think that they are tired of life, or of methylated spirit itself. It is to be feared that the publicity given to the case in question may lead to other similar cases. It seems that the risk is one of many which must be taken unless a large number of normal people are to be deprived of one of the conveniences of life. One possibility, however, remains. The toxic effect may be due to an impurity which, perhaps, could be removed without much trouble. This view seems to have been taken by Sir William Willcox and Dr. C. Ainsworth Mitchell in a note in the *Analyst* which was the subject of comment in THE LANCET six years ago,[3] but there should be no difficulty in separating metaldehyde from the condensing agents used in its preparation and there seems to be no evidence of organic impurity. The fact that as much as an ounce of paraldehyde can be taken with impunity affords no a priori grounds for supposing that the boy of 16, who swallowed 5 g. of meta fuel in mistake for sweets and who was fortunately cured after a short but serious illness, or the young woman who died after taking nearly an ounce, would have been less affected if the metaldehyde taken by them had been known to be of the highest purity. It may be as poisonous as many other things in common use—white and red lead, potassium dichromate, or the soluble salts of barium—but like these substances it is useful and with due care can be used with impunity by reasonable people who will keep it from children and who do not themselves want to die.

COMPLICATIONS AT MALMO

EARLY in 1932 small-pox appeared in Malmö, Sweden. Vaccination on a very large scale was at once undertaken and about 140,000 people were vaccinated in a few weeks; the epidemic ceased. Shortly afterwards there were reported persistent local reactions with severe inflammation, in some cases accompanied by fever, lymphangitis, and adenitis, followed by necrosis and lethargic ulcers, with complete recovery in about two to three months. Apparently no deaths were directly attributable to the infection. Much controversy has centred around these lesions. H. Magnusson[4] incriminates the makers of the lymph—the State Bacteriology Institute. He reports that he found the impressive number of 50,000 *Staphylococcus aureus* per c.cm. (whereas in only one of the 21 foreign vaccine lymph samples did he find this organism, and then only in very small numbers); that necrosis occurred in thousands of cases; that from the lymph and from the abnormal reactions in the human patients strains of *S. aureus*, which were culturally and serologically identical, could be recovered; and that the contaminated lymph produced normal vaccine lesions on cattle, which suggests that the contamination had probably been present in the lymph strain for some time and had been passed through cattle. C. Kling,[5] on behalf of the Institute, replies that microbes in lymph which have resisted the action of glycerin during storage are admittedly innocuous to human beings; that exactly the same percentage (77) of both Swedish and foreign lymphs contained *Micrococcus aureus* or *citreus;* that similar lymph had been used elsewhere than in Malmö without causing abnormal reactions; that very few abnormal reactions occurred; and that those few were due partly to the action of the highly potent lymph and mainly to secondary contamination with skin cocci through lack of care by the vaccinated subjects.

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[2] Goodhart, G.: Proc. Roy. Soc. Med. (Sect. Trop. Dis.), 1932, xxv., 1713.

[3] THE LANCET, 1927, ii., 760.

[4] Magnusson, H.: Acta Path. et Microbiol. Scand., 1932, Suppl. XI.

In the absence of an independent examination it is difficult to attribute the responsibility to the lymph-maker or the patients, but most pathologists will agree with Prof. Forssman's remark that vaccination with lymph containing these large numbers of bacteria can only be condemned. The regulations under the English Therapeutic Substances Act do not permit the issue of a lymph containing the number of micro-organisms above-mentioned, and English workers will remember with an appreciative sense of security the requirements which these regulations embody.

CONGENITAL EPULIS

In their excellent account of a case of congenital epulis, in the May number of the *Edinburgh Medical Journal*, Mr. D. S. Middleton and Dr. W. F. Harvey say that no more than 14 have been described, and the condition is clearly very rare. The case recorded by Dr. P. C. Das, on p. 182, agrees in every respect save one with that of Middleton and Harvey. Hitherto, wherever the sex has been stated, the child has been a female, but Das's patient was a male. It is somewhat remarkable that the fibrous epulis which is comparatively common in adults is also much more often seen in females, though the myeloid type or osteoclastoma shows no such sex preponderance. Opinions have differed over the histology of these tumours, for while Massin and Schorr regard them as epithelial in origin, Das, like Middleton and Harvey, holds that they are mesodermal. But while Das thinks that the tumour is a fibroma composed of embryonic connective tissue, Middleton and Harvey put forward the view that it is allied to the xanthoma. It is surprising that a tumour in this position should attain so large a size before birth and yet derange the normal tissues so slightly that after its removal the development and eruption of the teeth appears to be unaffected. It has been stated that the incisor on the side of the tumour has a tendency to become carious; but it is doubtful if even this is in any way due to the formation of the congenital epulis.

A LIFE OF HAHNEMANN

Hahnemann was born in 1755, and when he was about 35 he took large doses of cinchona and judged that they produced the essential symptoms of ague. He spent the rest of a long and restless life in preaching and practising the homœopathic method of treatment which sprang from this chance observation, and after living in about a score of different places finally died in Paris in 1843. Mrs. Hobhouse has written an interesting account[6] of an exceptional man, but it would have been better if she had left out some of the rather tedious details and given rather more space to discussing Hahnemann's general position in relation to the current medical practice of his times. When, too, the principles of homœopathy receive any notice, there appears to be some confusion of thought; the general rule that an agent which is poisonous in high concentrations may be stimulative if it is sufficiently diluted is several times cited as an illustration of Hahnemann's prescience, and Sir John Weir in the preface claims that vaccine therapy and anaphylaxis are also homœopathic. This seems to be in flat contradiction to what Hahnemann himself taught, for he distinguished (p. 146) very clearly between similars (homoioousia) and identicals (homoousia), and said that he never claimed that identicals had any curative effect. What determined the success of homœopathic practice, from the patient's point of view, at its inception? It seems likely that it got a foothold and flourished partly at least because it involved (at its best) an unusually thorough and careful examination of each patient, because it trusted a sick man's capacity to cure himself, and because it abandoned the vigorous bleedings and purgings popular at the time.

THE SUPRARENAL CORTEX

The suprarenal medulla secretes adrenaline, and a good deal is known about its function in the *animal economy.* But the suprarenal cortex is probably just as important and we are only now on the edge of discovering anything about its activities. Swingle and Pfiffner tell a fascinating story in reviewing[1] their own particular part in this research. Having tried other ways of approach they come to the conclusion that the first step towards finding out the function of the cortex must be the isolation of its hormone—or at least the preparation of an active extract. As is well known, removal of both suprarenal glands in mammals, such as the cat and dog, is rapidly fatal; they become collapsed and cold, and die on the average less than ten days after the second gland is excised. The investigators' aim, therefore, was to make an extract which would keep such animals alive and in good health, and in this they have been completely successful. A principal difficulty was to keep the preparation free from any impurity which might mask the effect of the hormone, and for a long time they were hampered especially by the presence of small quantities of adrenaline in their extract. They tried to get over this by carefully dissecting the cortex away from the rest of the gland, but this proved ineffective as well as laborious. Fortunately they then hit on a method—based on J. C. Whitehorn's observations—by which the solution can be made to lose almost all its adrenaline on passage through permutit. Not only did this provide an extract containing (if need be) as little adrenaline as 1 part in 5,000,000, but it also enabled them to make it directly from whole gland without the expense of dissection. Each cubic centimetre represents 40 g. of whole suprarenal gland; its adrenaline concentration varies between 1 in 1,250,000 and 1 in 2,500,000; and the content of solids is only 0·2 to 0·3 per cent. For purposes of assay they defined a dog unit (D.U.), which was "the minimum daily kilogramme dose of cortical hormone necessary to maintain normal physiological conditions in the adrenalectomised dog for a period of seven to ten days; the two criteria of normal physiological condition being maintenance of body-weight and blood level of non-protein nitrogen (or urea)." On this definition the old dissected cortex extract had an activity of 4 to 10 D.U. per c.cm.; but curiously enough it was found that whole-gland extract, prepared by the new permutit process, gave much higher values—40 to 80 D.U. per c.cm. Adrenalectomised animals can be kept in perfect health with this cortical hormone; when it is withdrawn they soon become prostrate and moribund; and when its use is resumed they rapidly and regularly recover. And in human therapeutics such extracts have proved capable of rescuing patients from the acute phases of Addison's disease.

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[5] Kling, C.: Bull. de l'Off. Internat. d'Hyg. Publ., April, 1933.

[6] Christian Samuel Hahnemann. By Rosa Waugh Hobhouse. London: C. W. Daniel Co. 1933. Pp. 288. 7*s*. 6*d*.

[1] Swingle, W. W., and Pfiffner, J. J.: Medicine (Baltimore), 1932, xi., 371.

Yet the function of the suprarenal cortex remains a mystery. "We still are wondering," Swingle and Pfiffner say, "how the hormone accomplishes the work that it does"; and the careful observations they have made do not provide the answer. They hoped, of course, that by injecting relatively huge quantities of highly potent hormones they would produce some significant overdosage effect—on respiratory metabolism, blood chemistry, or urinary excretion, for example. At the time of their report, however, they had obtained by this means no very definite clue to function. Like the hormones of the anterior pituitary hormone and the gonads, the cortical hormone does not seem to have any toxic effect on normal animals—differing in this from such substances as insulin, pituitrin, and thyroxin. On the other hand there was some reason to suppose that it has an influence on respiratory metabolism, and it was also noteworthy that the signs of renal failure which developed after removal of the suprarenal glands were rapidly abolished by administration of the hormone. Renal insufficiency is a constant finding after adrenalectomy, but the damage is regarded as chiefly functional, since there is a return to normal with cortical extract. The sexual changes often associated with tumour of the suprarenal cortex have led to a general belief that there is some connexion between the suprarenals and the sex glands. If indeed the cortex secretes a hormone influencing the gonads, it is probably present in Swingle and Pfiffner's extract, for all the processes of breeding and lactation go on undisturbed in adrenalectomised dogs which are kept alive with this preparation. Corey and Britton observed that extract prepared by the same method caused precocious sexual maturity in young rats, especially females, but their results have not been confirmed. The same workers have also noted[2] that suprarenal insufficiency leads to changes in the cellular elements of the blood. In experimental animals, as well as in Addison's disease, it is associated with a rise in the red cell count; but this rise is probably only relative, being attributable to loss of fluids and consequent concentration. More interesting are experiments showing a reduction in the number of neutrophil leucocytes, which recalls agranulocytosis in human beings and has given rise to the suggestion that the cortex may preside over formation of this type of cell.

How far, it may be asked, is all this of any practical importance? That remains to be seen. The results of using cortical extract in the crises of Addison's disease have been brilliant; but no form of substitution therapy is likely to affect the tuberculous process which often underlies them. Moreover, when all is said and done, the problem of Addison's disease does not often arise in ordinary practice. On the other hand it is not unlikely that a better understanding of the function of the suprarenal cortex would give us reasons for using such extracts in other conditions. Without going further afield, it is possible—as Dr. Dorothy Hare points out in a letter on p. 209 to imagine a minor deficiency of cortical secretion, not serious enough to produce the syndrome of Addison's disease, which would respond to the appropriate hormone. Robbins[3] puts forward this idea in reporting a case in which "acute hyposuprarenalism" occurred as a complication of streptococcal sore-throat; he thinks the remedy may be useful in patients presenting vague symptoms such as low blood pressure, fatigue, depression, and gastro-intestinal disturbances. It must be admitted, however, that at the Mayo Clinic the few sufferers from neurasthenia, anorexia nervosa, and myasthenia who were given cortical extract were none the better[1]; Bernhardt and Levy Simpson[4] too have found cortical extract useless in a series of cases of myasthenia gravis.

Another line of approach to the problem is through the observation that the cortex is rich in hexuronic (ascorbic) acid, which is considered to be identical with, or closely similar to, vitamin C. As a source of this vitamin fresh cortex has proved three times as potent as orange juice, and it will be interesting to see what, if any, connexion this fact has with the other functions of the cortical hormone. Meanwhile one clinician at least has explored the possibility that vitamin C may be useful in treating Addison's disease, and he reports that three lemons a day got rid of pigmentation which had not yielded to a cortical extract.[5]

FOOD POISONING DUE TO STAPHYLOCOCCI

ALTHOUGH food poisoning due to staphylococci has never been recorded in this country, at least six well-authenticated outbreaks have occurred in the United States.[6] In a seventh, reported by Dr. R. McBurney,[7] the vehicle of infection was chocolate éclairs served at dinner to women students at an unnamed educational institution, presumably in Alabama. There were 150 definite cases, 75 being very severe, and a number of others with only nausea and weakness. Approximately 325 persons ate éclairs, and 60 to 70 per cent. were affected in some degree. Éclairs eaten elsewhere caused poisoning and all those affected ate éclairs. The incubation period was mostly two to three hours. The symptoms were nausea, salivation, abdominal pain, vomiting, extreme prostration, profuse diarrhœal attacks, and chilliness. There were no deaths, the average time of recovery being about 17 hours, but varying from 5 to 48 hours. From the custard filler and from the pastry golden yellow staphylococci were isolated. From several colonies bacteria-free broth filtrates were prepared. These filtrates, in doses of 10 c.cm., were given to each of eight volunteer medical students in 200 c.cm. of pasteurised milk. Four controls were fed with the pasteurised milk alone, and the students did not themselves know which milks contained the filtrate. Of those receiving the bacterial filtrate all were ill except one, who was slightly nauseated and felt weak; whereas no controls were affected. The incubation period was 1 hour 45 minutes to 3 hours, and the symptoms were similar to those in the outbreak. Some of the volunteers were extremely ill. The toxic material in the éclairs seems to have been contained in the custard filling, and this was filled into the shells of pastry by means of a pressure gun; this is an instrument difficult to clean, and in the one used a considerable film of dry custard was noted. The source of contamination of the custard, or pastry, was not ascertained. There were several batches of éclairs, and all were not filled with custard at the same time. This may be the explanation of the fact that only a proportion of the consumers were made ill. Cooking experiments at the bakery of custard artificially inoculated with the staphylococci showed that even in a concentration of 2,500,000 per cubic centimetre of liquid custard they were completely destroyed by the cooking process, which is done at 85° C. for ten minutes. The question of destruction of toxins—and the symptoms were due to the toxic products—does not seem to have been inquired into. But though the origin of the staphylococcus infection was not clearly studied, the association of the outbreak with the toxins of this staphylococcus must be accepted as reasonably established. It adds another outbreak to the small group with this peculiar causation. It is noteworthy that all or nearly all have been associated with the use of milk, either as milk or in some product such as cream cakes, cakes containing milk or, in one outbreak, cheese. Although the possibility of this type of food poisoning is now well recognised in this country, it is of interest that no case has so far been reported. Human volunteers seem essential to proof since animal experiments are negative; but the readiness to sacrifice oneself in the cause of science may be less evident on this side of the Atlantic.

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[2] Corey, E. L., and Britton, S. W.: Amer. Jour. Physiol., 932, cii., 699.

[3] Robbins, J. H.: Jour. Amer. Med. Assoc., March 4th, p. 657.

[4] Bernhardt, H., and Simpson, S. L.: Klin. Woch., 1932, xi., 2069.

[5] Szüle, D.: Deut. med. Woch., April 28th, p. 651.

[6] See THE LANCET, 1932, i., 33.

[7] Jour. Amer. Med. Assoc., June 24th, p. 1999.

P.

EVIPAN ANÆSTHESIA

A PAPER by Dr. E. Kobel[1] bears out some of the chief conclusions arrived at by the Anæsthetics Committee and printed in our issue of July 1st (p. 43). He refers to the inconvenience of attempting, with a single dose of Evipan, operations which outlast its term of anæsthetic action, and he believes that much caution is needed even when the drug is used for short periods. Not all patients can be safely left to go home soon afterwards; a proportion, he declares, suffer from delayed restlessness or double vision to a degree which makes it undesirable for them to be left to their own devices. He is much impressed with the advantages of evipan as an introduction to anæsthesia and, like the committee, he says that when it is used in this way the anæsthetic must be started within five minutes after injection of the evipan. Kobel has made no investigations into the use of the drug for long operations by repetition of the injection.

ALCOHOLISM IN MEDIAEVAL ENGLAND

THE sequel to Dr. J. D. Rolleston's observations on alcoholism in ancient Greece and Rome[2] was heard by the Society for the Study of Inebriety on July 11th, when he spoke on alcoholism in mediaeval England. The chief sources of information on this subject were, he said, not the contemporary medical writers, but rather the laymen—especially poets, historians, and ecclesiastics. In the Middle Ages, as in classical times, distilled liquors were unknown as a convivial beverage, and alcoholism was due mainly to indulgence in ale, and to a less extent of wine. Inebriety was, however, much more widely spread throughout society, though it predominated among the clergy (in spite of the protests of leading churchmen such as Anselm, Bede, Dunstan, Boniface, and Wycliffe) and university students. The mediaeval publican had a remarkably bad reputation for fraud and dishonesty, while the tavern was usually regarded as a place of ill repute. Dr. Rolleston remarked that though poetry was often associated in the popular mind with praise of strong drink, the three great English poets of the Middle Ages, Chaucer, Langland, and Gower, were keenly alive to the evils connected therewith. In one respect, however, these were less serious than to-day; there was no syphilis, and alcohol did not play its present part as an incentive to exposure to infection and as an aggravating factor in the disease once it is acquired. It is noteworthy that whereas legislation dealing with drunkenness or control of the liquor trade was unknown in the ancient world, the Middle Ages saw the introduction of taxation of drink, reduction of the number of hours of sale, and diminution in the number of taverns.

THE CHILDREN AND YOUNG PERSONS ACT

THE Home Office has made an "appointed day" order bringing the whole of the Children and Young Persons Act of 1932 into force as from Nov. 1st, 1933, so far as not already in operation. The only exception is Section 51, sometimes called Lady Astor's clause, which enables a local authority to make by-laws as to the employment of persons under 18. It must be remembered that almost all the 1932 Act has been repealed and replaced by a consolidating statute passed last April, and this more recent consolidating statute is to take effect when the 1932 Act (except Section 51) has been wholly brought into force. This means therefore that the new 1933 Act will take effect next November. Already rules have been published which constitute the new children's courts under the 1933 Act. The principal portion of the 1932 Act which is left to come into force next September is Part V. This consists of an amendment of Part I. of the Children Act of 1908 and deals with infant life protection. The consolidation of 1933 did not touch Part I. of the 1908 Act or Part V. of the 1932 Act, possibly because a line was being drawn between matters dealt with by the Home Office and matters dealt with by the Ministry of Health. The foregoing observations relate only to England and Wales. Possibly Scotland will bring its own Act of 1932 into force on the corresponding date but Scotland has yet to undertake the task of consolidating the enactments.

HEALTH IN SCOTTISH PRISONS

THE annual report of the Prisons Department for Scotland (Cmd. 4336, 1*s.* 3*d.*) is now available for the year 1932. Health was good; prisons and similar institutions were free from any disease attributable to sanitary defect or other remediable cause. Dr. Robert A. Fleming, medical adviser to the Department, once more emphasises the fact that the great majority of prisoners greatly improve in physical condition while in prison and alludes to the use of more elaborate psychological treatment of young delinquents. Success has apparently attended psychological examination in Borstal institutions in Scotland, and special attention is being given to patients whose mental state seems abnormal. Though little can be done to influence the young offender whose prison sentence is short, Dr. Fleming holds out the hope of extending the methods of expert preliminary investigation and treatment "when financial considerations permit." Unemployment is an element to be reckoned with both in the statistics of crime and in the after-care of discharged prisoners. One strange effect of it, mentioned by the governor of the Barlinnie prison in Glasgow, ought somehow to be avoided. Twenty-three juvenile adults were admitted to his prison for the offence of playing football in the street. This offence is punishable by fine; but, where the lads and their fathers are unemployed, imprisonment is liable to follow in default of payment. The punishment is therefore in effect a sentence of imprisonment without the option of a fine.

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[1] Deut. med. Woch., June 30th, p. 996.

[2] See THE LANCET, 1926, ii., 866.

PERICARDIAL INJECTION OF LIPIODOL

ALTHOUGH lipiodol has so far been used principally for diagnostic purposes in the radiography of the lungs, there is reason to think that it may have a therapeutic value in chronic pulmonary disease. The same applies to its injection elsewhere. It has been employed but seldom in cases of pericarditis since it cannot be expected to give information of much diagnostic value, but the few recorded cases do suggest that its injection may in itself bring about some improvement in the clinical condition. In reviewing the possibilities, Dr. Paul W. Fritsch[1] reports in detail a case of his own.

A girl, 10 years old, with a previous history of articular rheumatism and carditis, was admitted to hospital with a left basal pleurisy and clinical and radiographic evidence of an extensive pericardial effusion. There were subsequently physical signs elicited which were interpreted as indicating a left lower lobe pneumonia, and 130 c.cm. of greenish-yellow fluid were aspirated from the left base. Pericardial puncture was carried out in the fifth interspace outside the radiographic shadow of the heart, the needle being directed obliquely inwards towards the heart. At the second attempt, 75 c.cm. of slightly blood-stained exudate were removed, which contained flakes of pus and pneumococci. Two cubic centimetres of lipiodol were injected, after which radiographic examination showed a fine deposit of opaque substance in the basal and lateral regions of the pericardial sac. The general condition of the patient gradually improved, and the dyspnœa and precordial pain diminished. Four weeks after the injection the patient was free from symptoms, and clinical and radiographic examination showed evidence of mitral disease uncomplicated by effusion; the signs at the left base had also cleared.

Whilst the immediate amelioration of urgent symptoms may be attributable in this case to the withdrawal of fluid from the pericardial sac, it is not unreasonable to suppose that the lipiodol may have been responsible to some extent for the subsequent absorption of exudate and for preventing adhesions. This is the more significant since the fluid had contained pus and pneumococci. The method of treatment appears at any rate to be harmless if small quantities are employed.

PUBLIC HEALTH IN SHANGHAI

DR. J. H. Jordan's report to the Shanghai Municipal Council for 1932 has just been published, and, having consideration to its bulk and the amount of information which it contains, the publication is prompt. The document is of great interest, as showing how many are the avenues of health to be safeguarded in a great city on the edge of the tropics, for Shanghai, standing approximately at sea level, is at the latitude 31° N. The population of Shanghai proper is made up of a little over a million of Chinese and 44,000 of other nations, but in the area of greater Shanghai, as estimated in October, 1932, the population is over three millions. Throughout the year the Sino-Japanese conflict dislocated the work of the health department, as all sick in the municipal hospitals, which were in the fighting area, had to be removed to new quarters. The evacuation was completed in three days, but the work put a heavy burden on the staff, who had to arrange at short notice for 85 camps housing 44,000 refugees. The incidence of mortality from the communicable diseases is the subject of close tabular statement. The chief cause of death was tuberculosis, and here the figures of the Chinese and the foreigner are more comparable than in the case of other diseases, the natives being proportionately the greater sufferers, even when their preponderance in number may warrant the larger total mortality. In the case of diphtheria, 59 cases were notified among the foreign residents with two deaths, while among the Chinese there were 350 cases with 73 deaths. Of influenza, 11 cases were notified among the foreign population, and there were 157 cases among the Chinese with 69 deaths. There was an outbreak of cholera during the year, and measles was prevalent to an extent which the report acknowledges to be not indicated by the figures, identification of cases being very difficult. Other evidence of the strict sanitary conscience exhibited by the municipal authorities is supplied in the inspections of foodstuffs, bakeries and markets, and the visiting of slaughter-houses and, to a certain extent, the dwelling-places. Slums are being cleared in Shanghai, but it is delicate work to improve conditions where the population shows no interest in reforms or resists them.

SCHOLARSHIPS FOR SONS OF MEDICAL MEN

BY the generosity of Sir Milsom Rees two scholarships will be awarded annually to the sons of medical men. Each scholarship will be of the annual value of £100, to be deducted from the fees, and the scholars will be educated at Port Regis Preparatory School, Broadstairs. At the moment the school contains 50 boys, but further accommodation has now been built, so that there will be ample accommodation for this addition. Boys at entry must be between 8 and 9 years of age, and they may hold the scholarship for some five years. They will be selected at an interview from those boys who have done best in some simple examination conducted in or near their own homes. The first examination will be held in March, 1934, and the scholars will join the school at the commencement of the following summer term. Full particulars may be obtained on application to the headmaster, Port Regis School, Broadstairs.

MR. D. P. D. Wilkie, professor of surgery in the University of Edinburgh, has been appointed a member of the Medical Research Council in succession to Mr. Wilfred Trotter, F.R.S., who retires in rotation on Sept. 30th, after four years' service.

INDEX TO "THE LANCET," VOL. I., 1933

THE Index and Title-page to Vol. I., 1933, which was completed with the issue of June 24th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

BRITISH DENTAL HOSPITAL.—The report for 1932 expresses regret at the resignation of Mr. George Thomson, who has been chairman since the establishment of the hospital in 1911. He has been succeeded by Mr. E. E. Turner, the honorary treasurer. The scheme for treating adolescents at reduced fees bridges the interval between the school-leaving age and that at which eligibility for dental benefit under the Insurance Acts begins. The facilities provided by the hospital, in coöperation with a number of metropolitan borough councils, for the dental treatment of expectant and nursing mothers and their young children at special clinics have been largely made use of. During the year 5637 children from the London County Council schools attended the clinic at the Lewisham treatment centre.

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[1] Acta Pædiat., 1933, xiv., 412.

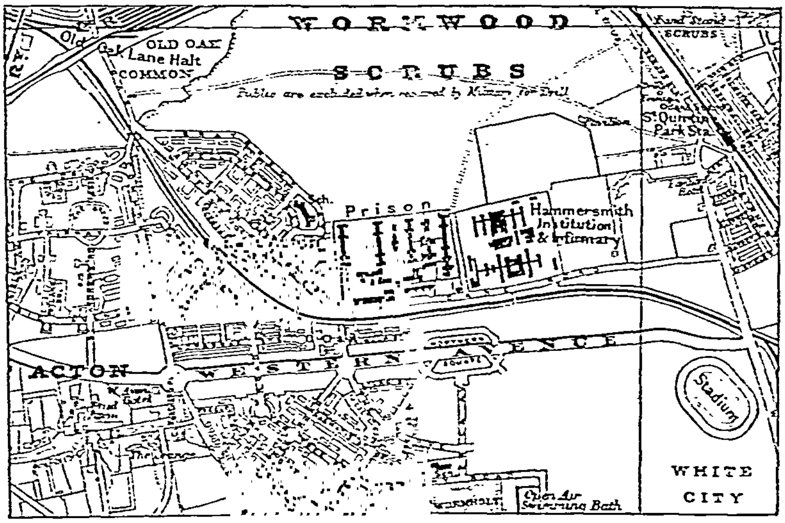
SPECIAL ARTICLES

BRITISH POST-GRADUATE MEDICAL SCHOOL

Mr. NEVILLE CHAMBERLAIN, Chancellor of the Exchequer, laid the foundation-stone of the projected British Post-Graduate Medical School at Hammersmith Hospital on July 17th.

THE STORY OF ITS INCEPTION

Sir AUSTEN CHAMBERLAIN, chairman of the governing body, in his speech of welcome to Mr. and Mrs. Chamberlain, explained that the Chancellor of the Exchequer had been invited to perform the ceremony by the unanimous wish of the board of management because of the great part he had played in the creation of the school. Lord Athlone's Committee had, he said, sat 12 years before to advise on the proper provision for post-graduate medical education in London; the London School of Tropical Medicine and Hygiene, the first part of its proposals, was in existence, and the second part was being inaugurated that afternoon. He regretted that Lord Chelmsford, the first chairman of the board of management, had not lived to be present. The occasion marked another step in the progress of the University of London.



A portion of Stanford's map of London to show the access to the British Post-Graduate Medical School, which will occupy the site of the old Hammersmith Institution.

The EARL OF ATHLONE recalled the remarks of critics in 1921 that his committee was a waste of time and its report would share the fate of those of most departmental committees and rest in the nearest pigeon-hole. He testified to the happy relations and cordial coöperation that existed between the University of London and the London County Council.

Mr. E. M. DENCE, chairman of the London County Council, said that when the Council had been approached by the Government, on the passing of the Local Government Act, 1929, to participate in the present scheme it had fully realised the imperial as well as the *national* value of a post-graduate school. Financial difficulties had twice prevented the approval of a definite scheme, but those interested in the school had remained undismayed and their tenacity had overcome all obstacles. The Council, employing some 630 medical practitioners, was intimately concerned in an adequate supply of well-equipped medical practitioners and had provided facilities at its own hospitals for under- and post-graduate teaching.

Mr. NEVILLE CHAMBERLAIN recounted the vicissitudes of the project for the school. Its promoters had seen their child fall repeatedly a victim to that shocking accident, a change of Government; they had sat up night after night at its bedside while it struggled against the ravages of that dangerous and infectious complaint known as an economy campaign, but they had brought it through. In 1925 his committee at the Ministry of Health had illustrated the fact that, among doctors as among delegates to world conferences, a complete unanimity on the desirability of the object might go with considerable diversity on the methods by which it might best be attained. The idea of a new hospital had been given up on account of the certain expense of maintenance. No teaching hospital had been prepared to sacrifice the instruction of undergraduates to that of post-graduates, and it had been clearly impossible to combine the two purposes in one institution. In 1927 negotiations had been commenced with the West London Hospital, which had presented the obvious advantage of being connected with a post-graduate college, but the site was very restricted and did not offer sufficient possibilities of expansion. The situation had been completely changed by the passing of the Local Government Act, 1929, which had given the London County Council 30 hospitals containing some 17,000 beds. The change of Government in 1929 had caused some anxiety, but the scheme was not a subject of party controversy, and Mr. Arthur Greenwood had taken it up where Mr. Chamberlain had left it off; under his chairmanship negotiations had been opened with the L.C.C., and the committee had recommended to the Government that the school should be established at the Hammersmith Hospital, which had 400 beds and was very suitable in its site and many other ways. A sum of £250,000 had been allotted, the organisation committee had been formed under Lord Chelmsford, and a Royal Charter had been granted. In 1931 the financial crisis had brought the first National Government into power. Mr. Chamberlain had realised that the *promise* of a quarter of a million pounds could not be fulfilled, but he had succeeded in compromising with Mr. Snowden for £100,000. When the second National Government had been formed, he himself had been Chancellor of the Exchequer.

THE PROJECT

The project included, he said, lecture theatres, laboratories, and the necessary offices for the dean, professors, and students. The extensions and improvements to the hospital would include new casualty and out-patient departments, a new ward, three new operating theatres, a central department for the sterilisation of dressings, and a new X ray, light, and massage department. The X ray equipment would be especially important and interesting.

When the two great schools were working side by side, they would make London the centre of the most comprehensive medical teaching institution in the world. On that very day was being celebrated the twenty-first anniversary of the National Health Insurance scheme. The value of that scheme must always be limited by the skill of the general practitioners who formed the panel. Doctors in the remote districts nowadays could not keep their knowledge and skill from rusting, but when the school was built the doors of knowledge would be thrown wide to them. The time would come when no general practitioner, man or woman, would let many years pass without refreshing and rejuvenating his mind at the school. This work reached, said Mr. Chamberlain, the very root of the problem by strengthening the mental equipment of those responsible for the public health. It would do more than any other single enterprise to raise the standard of the nation's health.

The Government, the University of London, the County Council, and the medical profession were all partners in the school, but, more than that, it would fill a long-felt need in the Empire. He had been profoundly impressed by the representations which visitors from the Dominions and even America had made to him that hard necessity forced them to go to the Continent and study in an unfamiliar language. They looked to London for the best and latest in theory and practice. To the benefit not only of Great Britain but of the whole of mankind, those desires had been heard and the reproach had been removed from the country.

Mr. Chamberlain then laid the foundation-stone with the assistance of the architect (Mr. Topham Forrest), the contractor, and the foreman. He was presented with a silver trowel for the purpose by Mr. Forrest. After a fanfare of trumpets, Sir E. HILTON YOUNG, the Minister of Health, proposed a hearty vote of thanks to Mr. Chamberlain, picturing his dreadful decision, as a stern Roman father, whether as Chancellor he should slay his own child or spare it. He announced his intention of making frequent demands upon one so alive to the needs of the nation's health.

MEDICINE AND THE LAW

Workmen's Compensation and Idiopathic Conditions

THE Court of Appeal has lately qualified the principle that in workmen's compensation cases the idiopathic condition of the workman may be largely disregarded. Ordinarily, employers take a workman for better or for worse. He may bring with him to his work a diseased heart, an aneurysm likely to burst at any moment, or an epileptic tendency. These and other similar disabilities may expose him to serious injury which normal, healthy workmen would entirely escape. If he is injured by accident in the course of his employment, the employers must compensate him even though his peculiar disability contributed to the accident. In a well-known case, a workman was quietly tightening a nut with a spanner. There was no jerk or momentary strain; the task would have had no effect on workmen of ordinary physique, but the effort was too much for this man with a disability. He suffered from an aneurysm, which burst; he fell back and died. Was this an accident within the Act? Yes, answered the judges; some part of the human mechanism broke because the man's physique was unequal to the demands of his work. A sequence of decisions on these lines has tended to enlarge the employers' liability; but last month, in Lander *v.* British United Shoe Co., the Court of Appeal decided a doubtful case in an employer's favour. Lander, 67 years old and employed for the last 17 years by the defendant company, was known to suffer from epileptic fits, which caused him to fall from time to time. Using the lavatory provided by the company for its workmen, he fell and fractured his skull with fatal results. It was apparently established that his fall was solely due to a fit. The widow claimed compensation under the Act. There had indeed been an accident "in the course of" her husband's employment, but was it an accident "arising out of" the employment? The county court judge, at Leicester, held that resort to the lavatory was incidental to, and obligatory on, the employment. The lavatory had a hard floor, dangerous for an epileptic to fall upon. The judge allowed the widow's claim, but the Court of Appeal reversed his decision. The lavatory, said their lordships, was not dangerous in itself; the premises where the workman was employed were safe. There was no causal relation or causal connexion between the accident and the employment. The employment brought the workman to the particular spot where the accident occurred, but the spot was not a zone of special danger. "The cause of the fall was peculiar to the workman himself, owing to his idiopathic condition."

The Court of Appeal thus broke away from earlier decisions where an epileptic's fall was held to justify compensation. In these earlier cases the workman was usually in proximity to some obvious potential danger—a river or a railway line; his fall meant that he was drowned or run over. Thus, in Wilkes *v.* Dowell (1905), a man employed to unload coal had to stand on a stage and to guide a bucket raised and lowered by a crane over a ship's hold; he was seized with a fit and fell into the hold. The employers argued that the fall was caused by the idiopathic condition of the workman himself and therefore was not an accident. The Master of the Rolls dismissed the argument. The fall was due to a fit, but the injuries were due to the fall; the fall was an accident. One must look, said Lord Justice Mathew, at the immediate cause. Lord Justice Cozens-Hardy rejected arguments founded on the disabilities which the man brought with him to his work. There might be a disability of age as well as a disability of infirmity unconnected with age. A man may be more prone to injury because he is old, but the employer cannot escape on that account. The workman loading the coal on the edge of a steep drop into the ship's hold was, we must suppose, in a "zone of special danger"; that is why his idiopathic condition did not bar his claim as it did in Lander's case recently. In Lander's case the Court of Appeal referred with approval to its own previous decision in Lawrence *v.* Geo. Matthews, Ltd. (1929). Lawrence, a commercial traveller, was allowed to travel as he liked. He chose to travel on a motor bicycle and, riding home from business, he was killed by a tree blown across the road by a gale. The court thereupon held that this was an accident arising out of Lawrence's employment because the incidence of his employment brought him within the special zone of danger.

These distinctions can be almost too subtle. Let us suppose that the commercial traveller had been an epileptic and that he chose to travel by train instead of by motor bicycle. If he were seized with a fit in a railway station and fell on the hard platform, then (according to Lander's case) his employers might escape liability, since his accident would be due to his idiopathic condition operating in a spot which was not a zone of special danger. But if the fit occurred when he was standing near the edge of the platform, so that he fell upon the line and was injured by a train, the legal decision might be the other way. Wherever these subtleties may lead, it is interesting to find the Court of Appeal once more paying attention to idiopathic conditions—a phrase familiar in the early days of litigation under the Act. An ideal planning of industry would ensure that no workman with grave physical disability should enter a zone of special danger.

Inquest Statistics

The tables dealing with coroners' inquests in the recently issued Criminal Statistics for England and Wales for the year 1931 (Cmd. 4360, 3*s.* 6*d.*) show a rise in the figures of deaths reported to the coroner and deaths investigated by coroners without inquests, but a fall in the total of inquests held. There were 30,801 inquests in 1931, including 18,873 held without a jury. Coroners directed post-mortem examinations in 11,069 cases and in 8458 non-inquest cases. The figures for recent years show a steady increase in recourse to the valuable discretionary power, exerciseable under Section 21 of the 1926 Act, to dispense with an inquest after directing a post-mortem examination. In spite of the developments of motor traffic the verdicts of death by accident or misadventure were fewer in 1931 than in either of the two previous years. The official introduction to these latest criminal statistics is a jejune document; the interesting comments supplied by the late Mr. Arthur Locke will be sadly missed. The table showing the sex and age of persons on whom inquests were held was omitted last year, the Home Office stating that it served no useful purpose. Mr. Locke, however, in the last introduction for which he was responsible, managed to find matter for comment in this information. The table showed, as he pointed out, that at nearly every point the deaths of males outnumbered those of females. More boys were born than girls, yet women outnumbered men; the statistics of inquest verdicts indicated some of the reasons that led to higher death-rates among males, thus destroying the earlier preponderance.

The recent Home Office figures deal as usual with the last year but one. Statistics for 1932 have already been furnished to the London County Council by metropolitan coroners. These show 8360 deaths reported to coroners (an increase of 205 on the figure for 1931) and 3491 inquests held (a decrease of 112). The proportion of males to females was roughly four to three as against nine to seven in the previous year. Post-mortem examination was made in 2660 inquest cases (76 per cent.) and in 2588 non-inquest cases (53 per cent.). There is an increase in the London figures of suicide in 1932, as there is in the figures for the whole country for 1931. London verdicts indicate that 1892 people met their deaths by accident, as against 2050 in 1931. There is a rise in the number of inquests on newly born children and in the deaths attributed to excessive drinking. Coroners' inquests and inquiries cost the County Council nearly £34,000 last year, but this substantial total includes only £631 12*s.* for jurymen's fees in the 1001 inquests held with juries. The cost of coroners' inquests and inquiries in England and Wales in 1931 was £95,257 for coroners' salaries and £118,406 for other expenses. The latter total presumably includes a considerable item for doctors' fees.

Walton *v.* Lief and Natural Healing Ltd.

Although Mrs. Walton succeeded on both the issues raised in her action against Mr. Stanley Lief and Natural Healing Ltd. (summarised in this column last week) the question of costs remained to be argued. The jury had awarded £123 16*s.* damages on the issue of breach of warranty (Mr. Lief's undertaking that he could cure the lupus erythematosus from which Mrs. Walton suffered) and one farthing damages on the issue of negligent treatment. Sir Patrick Hastings, K.C., applying to the Lord Chief Justice for judgment with costs in the action, argued that in the present proceedings a farthing had not the contemptuous significance which it was considered to have in libel actions. The defendants, he said, had not succeeded on any issue, and therefore should be made to pay costs. Mr. Norman Birkett, K.C., for the defendants, endeavoured to show that Mrs. Walton had pleaded the two causes of action (breach of warranty and negligence) in the alternative; as soon as she succeeded on the former, she had exhausted everything that she could recover, and the jury's answer on the issue of negligence became unnecessary. The significance of this argument was that, if the court accepted it, the defendants would have been entitled to costs (or at any rate would have been relieved of costs) on the question of negligence; the latter costs would of course include the expenses of those medical witnesses who gave evidence that Mr. Lief's treatment of Mrs. Walton was not negligent. The Lord Chief Justice gave judgment with costs for the plaintiff, briefly remarking that he thought the defendants were very fortunate in that the amount of the damages was no more.

Degrees Esoteric and Exotic

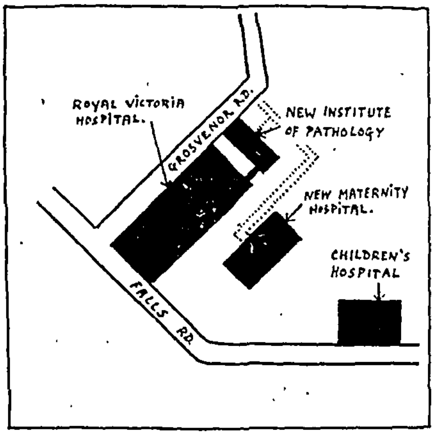
Mr. Lief's evidence about the letters which he uses after his name was referred to by Lord Jessel last week when moving the second reading of his University Degrees Bill, a re-drafted edition of his University Spurious Degrees (Prohibition of Use and Issue) Bill. Lord Jessel described Mr. Lief's M.N.C.A. as a degree conferred upon him by the British Society of Naturopaths. Lord Jessel mentioned also a widely circulated pamphlet in which a man called himself "D.C.Sc., Physician B., D.S., D.O.(London), F.R.S." There was, he pointed out, no such degree as D.O. in the University of London; it was wrong that people might be induced to think that the article recommended by the pamphlet was vouched for by some eminent medical authority. One might add that as Parliament has seen fit to protect the name of chartered associations like the boy scouts, the girl guides, and the Order of St. John of Jerusalem, the letters F.R.S. might well be restricted to their accepted application. Lord Jessel's Bill has two objects. Its first clause relates to what we may call esoteric degrees in the sense that they purport to have been conferred by bodies within the United Kingdom. This clause deserves support in the interests of the public and of the recognised universities. There is no difficulty in distinguishing the genuine universities of the United Kingdom. Parliament names them in connexion with special Parliamentary representation, and, so far as medical qualifications are concerned, a series of local Acts has extended the list of universities recognised as within Section 3 (1) (*a*) (qualifying examinations) or Section 7 (1) (membership of the General Council) of the Medical Act of 1886. There should consequently be the less difficulty in drawing the line. The second object of Lord Jessel's Bill attacks the abuse of exotic or foreign degrees. Here his proposed remedy requires some consideration. The Bill insists that those who use the title or description of a foreign degree should add the name and country of the university which granted it. But it seems a little hard that a doctor of philosophy of Heidelberg should have to write in full "Ph.D., Heidelberg University, Heidelberg, Germany." At the same time, there are, as Lord Iddesleigh observed, many bogus universities with extremely convincing names greatly resembling the names of real universities. If a man may use a foreign degree provided that he adds the name and address of the university whose degree he claims to be using, the result may merely increase the deception of the public.

IRELAND

(FROM OUR OWN CORRESPONDENTS)

BRITISH MEDICAL ASSOCIATION MEETING

EVERYTHING appears to be well prepared for the annual meeting of the British Medical Association in Dublin, and by the time this appears the Representative Meeting will have begun. It is stated that hotel accommodation has been stretched to the utmost, and it may be hoped, therefore, that the attendance will be above the average. It is nearly 50 years since the Association met in Dublin, and it is likely that many members of our profession will be glad of an opportunity to see Dublin in present circumstances. The attraction of a holiday in Ireland after the meeting is very great, and motorists may be sure of excellent roads and of satisfactory accommodation at hotels throughout the country. The scientific programme of the several sections contains many items of interest, and the social programme will occupy every available hour till far on in the night. The public of Dublin have come very cordially to the aid of the medical profession. The president of the Executive Council is giving a State reception in the historic St. Patrick's Hall of Dublin Castle; the Lord Mayor has given the use of the Mansion House for the reception offices and the trade exhibition; the University of Dublin is conferring honorary degrees and giving a garden party; the National University of Ireland is conferring honorary degrees, and in connexion therewith, University College, Dublin, is giving an evening reception and dance; the Most Reverend Dr. Byrne, Archbishop of Dublin, is giving a garden party; there will also be the president's reception, a garden party at the Zoological Gardens given by the Leinster branch of the Association, and the annual dinner. Several smaller receptions and parties will be given, both during the Representative Meeting and during the annual meeting. Ladies accompanying members may be sure of having their comforts attended to, for the Earl and Countess of Iveagh have generously lent their beautiful house in St. Stephen's Green as a ladies' club. Arrangements for golf, for tennis, and for various expeditions have been made. Given good weather the meeting should be very successful.

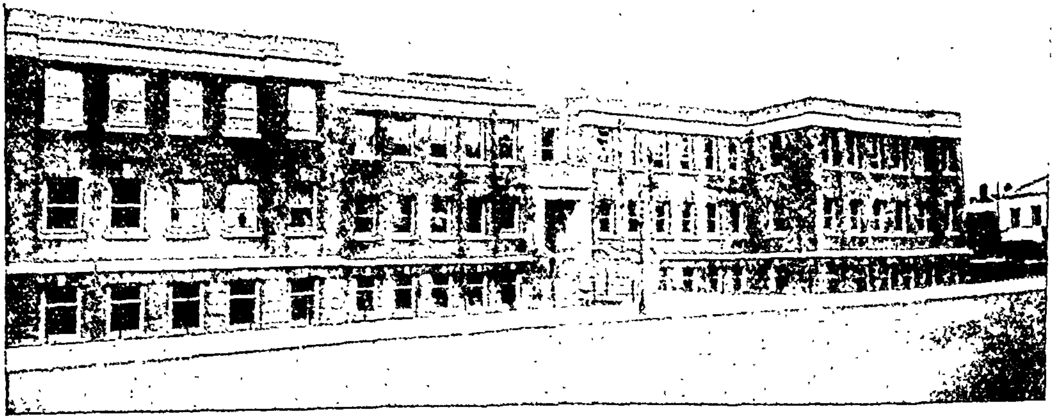


Plan showing site of new Belfast Institute.

AN INSTITUTE OF PATHOLOGY

The new institute of pathology of the Queen's University, Belfast, was formally opened on July 7th by Lord Craigavon, Prime Minister of Northern Ireland, in the presence of a large and representative gathering, over which Lord Londonderry, the Chancellor, presided. In speaking of the scheme and its fulfilment, Prof. J. S. Young referred especially to the time and thought given to it by his predecessor in the chair of pathology, Prof. Murray Drennan, of Edinburgh.

The site adjoins the Royal Victoria Hospital, and close to it are also the Belfast Hospital for Sick Children and the new Maternity Hospital, as yet unopened. The four buildings are thus within easy access of each other. On the lower floor of the new institute is the department of bacteriology, and on the middle floor the pathology department. These are university units intended for lectures, instruction in practical work, and research. There is a good museum for pathological specimens, a library, and two lecture theatres, with smaller laboratories for special



The new Institute of Pathology at Belfast.

work. The upper floor of the building is devoted to direct hospital needs and replaces the former laboratories in the King Edward VII. memorial building. An enclosed passage connects it with the main corridor of the hospital. Here are the bacteriological and biochemical laboratories, with preparation rooms for the examination of pathological specimens sent from the wards.

The opening of the institute is a great advantage. Formerly the department of pathology was at the University which is situated some distance from the hospitals. Now, a closer coöperation between the clinical and pathological sides is assured, and this is an important gain to the Belfast medical school.

HEALTH OF THE PUBLIC

The Health Week, held in Belfast from June 5th to 10th, was a great success and did much to interest people in what the Lord Mayor called the silent work of the health committee. One of the lessons brought home was that much of the responsibility for preventive medicine falls on the public; hence familiarity with health measures must not be allowed to lapse into apathy. "Every householder," said Dr. C. S. Thomson, "should endeavour to be his own medical officer of health." No less than 25,000 people visited the health exhibition in the Ulster Hall, and there was a more than full attendance at the film displays and lectures. These last were given by, among others, Dr. F. M. B. Allen, Dr. David Lees (Edinburgh), Prof. J. R. Currie (Glasgow), Dr. Andrew Trimble, Dr. S. Simms, and Alderman J. D. Williamson, M.D., chairman of the public health committee. Dr. Williamson, in tracing the history of public health in the city, was able to point out that typhoid fever had been almost exterminated as a result of a forward policy; and in the various meetings both speakers and audience expressed their appreciation of the services of the committee, and especially of Dr. Thomson as medical superintendent officer of health.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

THE AMERICAN MEDICAL ASSOCIATION

THE eighty-fourth annual meeting of the American Medical Association has just been held at Milwaukee under the presidency of Dr. Dean Lewis, of Baltimore. The president's address ranged from plague in the time of Justinian to the excess production of physicians in the United States of to-day. "Careful studies indicate," he says, "that there are 25,000 more physicians than are required." Reference was made to regulations restricting the licensing of graduates from foreign medical schools—regulations to which attention has already been drawn in this column. The report of the Committee on the Costs of Medical Care was unfavourably criticised. The attitude of the profession towards public health work, was, on the contrary, declared to be most sympathetic. "Doctors welcome public health measures and, I am sure, will do everything in their power to prevent politics from entering into the field."

Another friendly gesture towards preventive medicine was perhaps intended in the election as next year's president of Dr. W. L. Bierring, of Des-Moines, Iowa, who was recently appointed health commissioner of that State. Although he is not a specialist in public health, Dr. Bierring has had a distinguished medical career and was for many years president of the State board of health. He is a descendant of Vitus Jonassen Bering who gave his name to the Bering Strait.

Thanks to a handsome profit from its journal and a remarkably successful investment policy the Association's finances are in a sound condition. The popular journal *Hygeia* is now also published on a self-supporting basis. Three-quarters of a million dollars are held towards the cost of a new building for headquarters in Chicago. The meeting next year is to be held in Cleveland, Ohio.

DEATHS FROM SCORPION STING

The public health department in Arizona reports six deaths from scorpion sting in the last two years. Most of these deaths have been of children. Both the desert scorpion and the rock or mountain scorpion have been responsible for fatal poisoning. Treatment is rendered difficult by the very minute wound caused by this sting. It is recommended that a tourniquet be applied and the puncture wound laid open by a cross incision and allowed to bleed freely. Reference is made to English research which has demonstrated that the scorpion venom is identical with that of the cobra, and a pious hope is expressed that within two or three years a specific antivenin will be available for treatment of the victims of scorpion sting in the State of Arizona, similar to that already made available by the Mexican Institute of Health and the French Government.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Lts. F. W. Gayford and T. S. Osborne to be Surg. Lt.-Comdrs.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. D. C. Wilson to be Surg. Lt.-Comdr.
Surg. Sub-Lt. R. H. Wheeler to be Surg. Lt.
Proby. Sub-Lt. E. D. Mitchell to be Sub-Lt.

ROYAL ARMY MEDICAL CORPS.

The undermentioned Lts. to be Capts.: G. F. Harrison J. M. Ryan, and C. A. Levy.

Lt. (on prob.) H. B. Wright resigns his commn.

T. McGregor McNie to be Lt. (on prob.).

TERRITORIAL ARMY

R. K. Reeves to be Lt.

A. C. Frazer to be Lt. supern. for serv. with Univ. of Lond. Contgt. (Med. Unit), Sen. Div. O.T.C.

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt. G. S. Lewis, from Active List, to be Capt.

INDIAN MEDICAL SERVICE

Lt. (on prob.) D. P. Nath to be Capt. (on prob.).

Lts. (T.C.) C. L. Ahluwalia, G. Singh, K. L. Malhotra, S. P. Bhatia, and P. K. S. Gupta to be Capts. (T.C.).

RESERVE OF AIR FORCE OFFICERS

Flying Officer G. Williams relinquishes his commission on completion of service.

ROYAL VICTORIAN ORDER

On the ccasion of the visit to London of the King of Iraq, H.M. the King has appointed Major H. C. Sinderson, O.B.E., R.A.M.C. (Militia) to be a membe of the Fourth Class of the Royal Victorian Order.

NATIONAL HOSPITAL, QUEEN-SQUARE.—We have now received a programme of the lectures and demonstrations arranged at this hospital for the terms beginning on Oct. 2nd and Jan. 22nd, 1934. Particulars may be had from the secretary of the medical school, National Hospital, Queen-square, London, W.C.1.

THE BUCKSTON BROWNE SURGICAL RESEARCH FARM

THE Buckston Browne Surgical Research Farm of the Royal College of Surgeons, which was opened last week by Sir Holburt Waring,[1] is situated in the village of Downe, Kent, and adjoins the grounds of Down House, the former home of Charles Darwin.

Residential Hostel

The farm consists of two fields, with an area of 13 acres, on which there are two buildings—one containing laboratories and one a residential hostel.

The basal idea of the laboratory building was suggested by Dr. G. Scott Williamson to the architect, Mr. E. C. Frere. Three corridors radiate from a central hall. The theatre and sterilising room are planned and equipped on the pattern of a modern cottage hospital, and separate laboratories for histological and physiological work are provided. There is a kitchen for the preparation of food for the animals. The animal rooms open to the exterior on one side, so that when required further extension of the accommodation can easily be obtained by closing in some of the outer compartments which are at present provided only with a roof. The laboratories are heated by a system of hot-water pipes and a domestic gas and electric light supply is also available.

A Physiological Laboratory

The other building, in the hall of which the opening ceremony took place, was designed as a residential hostel for permanent or occasional workers. Sir Arthur Keith, when thanking Sir Buckston Browne for his magnificent gift, commented on the stimulating value to young members or Fellows of the College interested in a particular problem, of opportunity to go down to the laboratories for a week-end and discuss their ideas and plans for research. The building contains a large hall to serve as a common room, on the walls of which hang paintings of the Stuart Kings, copied from Van Dyck, presented by Sir Buckston Browne. A gallery runs along one side of the hall from which the sleeping rooms open. These are pleasantly furnished and each door bears the name of an illustrious figure in English surgery: Hunter in the place of honour in the centre, Lister on one side, while the name of the third room is in abeyance pending arbitration, according to Sir Arthur, between his own choice of Paget and Sir Buckston's championship of Jenner's claim. For the occasion of the opening ceremony at least, he said, he had caused Jenner's name to be carved on a wooden plaque in deference to Sir Buckston's views, but did not guarantee that it was permanent. Over the entrance to the hostel is a statue of a friend of animals, St. Francis of Assisi, and the arms of the Royal College of Surgeons.

Animal Operating Theatre

Sir Buckston Browne confessed to a deep admiration for Jenner, one of Hunter's most brilliant pupils, and a benefactor of humanity whose work had had too little recognition. Speaking of those who opposed all experimentation on animals, he maintained that whatever was done for or ascertained for the benefit of man, who was only the head of the animal kingdom, was used in our veterinary colleges and hospitals for the benefit of animals. It was to be hoped that in these laboratories of the Royal College of Surgeons some steps would be made towards the elucidation of the biological problems of surgery.

Animal Rooms and Laboratories

Among those present were Lord Lamington and Sir Charles Sherrington, and the following among other prominent surgeons :—

Lord Moynihan, Sir Charles Ballance, Sir James Berry, Sir John Bland-Sutton, Sir George Makins, Sir Cuthbert Wallace, Prof. G. E. Gask, Prof. E. W. Hey Groves, Prof. C. A. Pannett, Prof. G. Grey Turner, Mr. W. McAdam Eccles, Mr. Sampson Handley, Mr. R. E. Kelly, Mr. Hugh Lett, Mr. V. Warren Low, Mr. R. P. Rowland, Mr. W. G. Spencer, and Mr. A. E. Webb-Johnson.

VICTORIA HOSPITAL, LICHFIELD.—The Earl of Harrowby, lord-lieutenant of Staffordshire, recently opened the new buildings of this hospital, which has been re-erected on another site. There are 34 beds, and the cost has been £25,682.

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[1] See THE LANCET, July 15th, p. 139.

PANEL AND CONTRACT PRACTICE

National Health Insurance: Coming-of-Age Celebration

A LUNCHEON to meet those responsible for creating, fashioning, and launching the National Health Insurance Act, which came into operation on July 15th, 1912, was held at the Hotel Victoria, London, on July 17th. The function was arranged by the approved societies organisations, the British Medical Association, the National Association of Insurance Committees, and the bodies representing dental, ophthalmic, and pharmaceutical service. The principal guest was Mr. Lloyd George, and with him were several of his colleagues in the Government of 21 years ago—Lord Reading, Mr. Winston Churchill, and Sir Herbert Samuel. Two former Ministers of Health, Dr. Christopher Addison and Mr. Arthur Greenwood, attended, and among the members of the present Government were Mr. J. H. Thomas, Sir Kingsley Wood, and Mr. Ernest Brown. Many members of the staff of the Ministry of Health, with Sir George Newman at their head, were present, and they included Sir James Smith Whitaker, formerly medical secretary of the British Medical Association.

The medical men present who were prominently identified with the organisation of the profession in connexion with national health insurance were the following: Sir Henry Brackenbury (chairman of council of the British Medical Association), Dr. E. K. Le Fleming (chairman of Representative Body), Mr. N. Bishop Harman (treasurer of the Association), Dr. H. G. Dain (chairman of the Insurance Acts Committee), Dr. H. C. Jonas (chairman of the Panel Conference), Dr. G. W. Miller (chairman of the Scottish Insurance Acts Subcommittee), Dr. H. J. Cardale (chairman of the London Panel Committee), Dr. Lewis Lilley and Dr. W. E. Thomas (members of the Insurance Acts Committee), and Dr. E. R. Fothergill and Dr. J. P. Williams-Freeman (former prominent members). Dr. Alfred Cox (lately medical secretary) was present, as was Dr. G. C. Anderson (the present medical secretary), and Dr. Robert Forbes (secretary of the Insurance Acts Committee). Mr. George Northcroft (president of the British Dental Association) with a number of representatives of that body occupied a table, and on every side people well known in the world of approved societies and insurance committees were recognised. The company numbered close upon 300.

Sir HILTON YOUNG, the Minister of Health, occupied the chair, and proposed the toast of "National Health Insurance." The figures illustrating the present position and achievement after 21 years, he said, were of almost astronomical magnitude. The number of persons insured under the scheme was 18½ million. From the inception of the scheme up to the present the amount disbursed in benefits had been £490 million. The Act was being administered by 7000 approved societies and branches and 200 insurance committees; 19,250 medical practitioners were under contract of service, and 12,000 chemists' establishments supplied drugs and appliances in connexion with National Health Insurance. He distributed praise to the approved societies, which, he said, illustrated in the variety of their forms of administration, the genius of adaptation to local peculiarities and interests, and to the medical profession, saying that his brief experience of his high office as Minister of Health had shown him how admirably the profession discharged its functions. He added that there was *no* better proof of the success of an organisation than the fact that it was imitated by others, and since the initiation of the scheme in this country 12 other countries, as widely apart as Norway and Japan, had instituted organisations similar to the one existing here. It was a tribute to the excellence of the scheme that it had survived the great trial and strain of the war, and the even greater trial of the prolonged depression and unemployment and shrinkage of national and individual income which had followed it. This was shown by the figures of successive valuations. At the first valuation there was a surplus of £17 million; at the second a surplus of £42 million, and at the third one of £36 million, a slight fall indeed, but still a remarkable testimony to the way in which the scheme had stood the test of the times.

MR. LLOYD GEORGE'S SPEECH

Mr. LLOYD GEORGE, who received a great ovation began his speech with an allusion to the presence of the officials, past and present, of the British Medical Association, and to the fact that that was one of the bodies promoting the luncheon. "I rub my eyes and say, 'What a pleasant dream! I do hope no one will wake me up.'" He went on to speak of his pleasure on meeting many of those associated with him in bygone struggles, and mentioned one or two who had passed away—Mr. Charles Masterman, Sir Robert Morant, and Sir Laming Worthington-Evans. He had almost forgotten what a really bad time he had 21 years ago. There was never a measure more needed—and less wanted. There had been no propaganda to create a demand. There was no real enthusiasm for such a measure, not even a party interest. "Society" was up in arms, and the agitation attained very formidable dimensions. Mr. Lloyd George, to his own huge enjoyment and that of the audience, read from a bundle of papers extracts from the speeches at the Albert Hall demonstration against the National Insurance Bill. The keynote of the oratory was "England and liberty." A lady described the Chancellor of the Exchequer of those days as a tyrant attempting to do what the worst kings in English history had failed to accomplish. There was a great shout of "No" from the massed thousands of mistresses and servants in the Albert Hall when she asked whether they were prepared to sit down tamely under what their fathers would have died to prevent. In spite of all the Welsh attorneys in the world, Britons never would be slaves. "Now, that is the stuff," Mr. Lloyd George interjected. "Politics was real fun in those days. In these decadent times no one is hated—outside his own party."

Then Mr. Lloyd George came to the doctors. In passing he mentioned the service of Dr. Alfred Cox in helping the smooth and effective working of the Act. But the doctors at that time were honestly persuaded that they were faced with ruin. It was a hard-worked profession with little leisure—at any rate, before the Insurance Act—and it was the first time that the profession as a body had come into politics, and politics was a heady wine, to which you had to get accustomed, and the medical profession was not. "I do not think they have done too badly for a profession that was going to starve. I see that sickness benefit during all these years has amounted to £178 million, and medical benefit to £170 million—not all gone to the doctors, but quite a good share of it." In a few days the annual meeting of the British Medical Association would be held at Dublin. He had no doubt it would carry many resolutions, but one resolution would not be carried, or even moved—namely, a resolution demanding the repeal of the medical benefit of the National Insurance Act and a return to the old contract system. He was glad to find that there were nearly 20,000 doctors working the Act now; he was told there would not be one. The medical correspondent of the *Times* had said that the doctors themselves were so much better off under the new system that their contentment rather than their dissatisfaction offered a target for criticism.

> "I am very pleased that I persisted in the teeth of much opposition. There is compensation in the passing of years, that you see the fruition of your labours. I have now turned from politics, and have become a humble market gardener. I planted some fruit trees in unlikely soil. We had to get rid of weeds and worms and of pests of all kinds. But it is a great source of pleasure to me every morning to see those trees laden with fruit. I was told when this Insurance Act was carried that the soil of Britain was not adapted to these compulsory ameliorative schemes, that Englishmen liked liberty to grow weeds, that the proposals I made were of the wrong type, and that certainly I was not the sort of fellow to plant anything. Well, I am glad to be with you who laboured with me in the planting, and that we have lived to see the tree grow and bear abundant fruit in the improvement of the health of the community, in the lifting of misery and anxiety from millions of households, and in its addition to the security of the State."

Mr. STANLEY L. DUFF briefly proposed the health of Sir Hilton Young, stating that the present Minister of Health came to his office with the respect of them all, and had remained in it to earn their affection. He also commented on one fruitful result of the National Health Insurance Act in bringing together administrators outside the department and those within it. They had learned many things about each other, and had come closer together on a firm ground of understanding.

Sir HILTON YOUNG contented himself, in acknowledgment, with expressing in his turn the thanks of the company to those who had helped to make the occasion noteworthy, especially to Sir Thomas Neill, the chairman of the reception committee. "We part," he added, "with the memory of high work well celebrated."

A Question of Emergency

Discussion has arisen between the panel and insurance committees for London about the proper procedure to adopt for emergency treatment. The executive section of the medical benefit subcommittee, to whom is delegated any decision as to refunding of claims, recently decided that some service rendered by a doctor to an insured person was one for which the doctor could be paid under the emergency scheme. The case was shortly as follows:

> The patient met with an accident at home and his son telephoned for Dr. A., on whose list he was; but Dr. A. was out at a case. The son was advised to telephone for an ambulance and to send the patient to hospital. After ringing up several hospitals without success, he obtained the service of the nearest insurance practitioner. This Dr. B., after examining the case, said he would call again next day, which he did, and then said: "You had better get your own doctor to attend now; would you care to pay my fee now which is 5s." The applicant replied that he was, he thought, entitled to free treatment from any insurance practitioner if his own doctor was not available, but he paid the fee and wrote to the insurance committee about it. Dr. B. stated that the patient had hurt his side through falling against a stair post. He found no serious injury; the patient was not in any great pain and declined an injection of morphia which was tentatively suggested. There was nothing in his condition demanding immediate treatment. "He struck me," said Dr. B., "as making a good deal of fuss over a trivial accident. I was not the nearest doctor and I felt justified in treating him as an ordinary patient and charging a fee." Dr. A. stated that a message was received, when he was out at a maternity case to the effect that the father had fallen and had broken his ribs. In view of the alleged severity of the accident the applicant was advised to summon an ambulance and get the patient taken to hospital. . . .

In this case, it seems, the insured person claimed the refund of 5s. paid. The executive section decided that there was an emergency, that the doctor giving the treatment could obtain payment for his services under the emergency scheme, and that the insured person must have his money refunded. In the view of the panel committee the action taken by the insurance committee was irregular in arranging for the refund of a fee before the panel committee had decided whether it was a case of emergency or not. Clause 5 (1) of the Allocation Scheme provides that if neither the practitioner nor his deputy is available for giving to the insured person any treatment immediately required owing to accident or other sudden emergency it shall be the duty of any practitioner who may be summoned and is available to give the insured person any necessary treatment. From the practitioner's point of view the word "immediately" is important. Obviously bleeding, states of unconsciousness, or sudden very acute pain do require immediate treatment, but can that be said of a man who bumps his chest, lies calmly in bed and refuses the injection of a drug to relieve pain? Clause 3 of the Distribution Scheme runs:

> "If a practitioner provides treatment in case of accident or sudden emergency to the patient of another practitioner under the terms of the Allocation Scheme, payment will be made in accordance with the scale of fees appended hereto. Accounts for such treatment must be sent by the practitioner to the committee on a form provided by the committee for the purpose within seven days after the treatment is given. Such accounts will, before payment, be submitted to the panel committee who *shall have power to disallow any item of account*. . . ."

The rest of the clause deals with the method of payment, whether from the fund or from the remuneration of the insured person's doctor, subject to appeal by either the doctor giving treatment or by the insured person's doctor against the panel committee's decision. Obviously this must mean that if, in view of the facts disclosed, the panel committee decides that immediate treatment was not necessary in any particular case, the doctor giving treatment cannot be paid under the emergency scheme. He then has the right to charge the insured person who (unnecessarily) called him in. The object of the procedure is to ensure that treatment is always given but that the insured person should pay extra for it if he fails to exercise a little patience when in some trivial occurrence he is momentarily unable to secure the services of his own doctor.

It is doubtful whether Dr. B. was in order in charging a fee until the panel committee's decision had been given, but it seems quite certain that the executive section of the medical benefit committee has no authority to decide whether any given service is an emergency or not. This is definitely the duty of the panel committee. The section's appropriate action would have been to advise the doctor to apply for payment under the emergency scheme and to inform the insured person that the fee paid would be refunded if in the opinion of the panel committee the service rendered by Dr. B. was considered to come within the scheme relating to emergency work.

CORRESPONDENCE

BLOOD CHANGES FOLLOWING IRRADIATION

To the Editor of THE LANCET

SIR,—The tenth annual report of the British Empire Cancer Campaign is a fine record of advance, and will be studied by all persons interested in the cancer problem. It is for this reason that I fear that too great prominence may be given to the "rather startling" statement, to which you refer in your annotation, regarding blood changes that have been recognised as occurring in X ray and radium workers and patients. It was the experience that such changes may occur, more than anything else, that gave birth to the X ray and Radium Protection Committee in 1921. The recommendations of this committee were followed by such a measure of protection that fears were abated certainly in so far as X ray workers were concerned. The matter was very different in the case of the radium worker. In 1924 the careful researches of J. C. Mottram drew attention to the profound blood changes which might occur in radium workers: aplastic anæmia, with marked diminution in the number of the red cells, with anisocytosis, and an absence of nucleated red cells; concurrently with this there was a low polymorphonuclear count with low lymphocyte count, the latter being the first evidence of danger, and frequently followed quite suddenly by severe anæmic changes. The result of this work, fortified as it was by reports from other countries, led to the most careful attention to the health, hours of work, and general working conditions of those engaged in handling radium. Even as lately as 1931 Prof. Wintz, in his brochure issued under the auspices of the Health Organisation of the League of Nations, stressed the importance of great care. While the work of R. H. Simpson and G. White Phillips cannot be disregarded, it is diametrically opposed to the consensus of opinion of all other workers both in this country and abroad. Until, therefore, it has received ample confirmation, it is greatly to be desired that we shall not depart in any material degree from a proper fear and respect for a potentially dangerous therapeutic agent, or the lamentable story which called for urgent measures in the past may be repeated.

I am, Sir, yours faithfully,

London, W., July 17th, 1933. STANLEY MELVILLE.

MEDICAL BENEVOLENCE

To the Editor of THE LANCET

SIR,—The annual meeting of the British Medical Association would seem to be an appropriate moment for the honorary officials of the Royal Medical Benevolent Fund to bring its claims to the attention of the profession. The report of the Fund for the year ending Dec. 31st, 1932, has recently been published, and its contents are worthy of perusal by every one of the 5000 direct subscribers; as to the other 47,000 medical practitioners who do not subscribe, we feel sure that, if they read it, they would at once become subscribers; then our dream of a subscription income of £25,000 per annum instead of £12,451 might become true.

We have reason to know that many medical men are somewhat confused about the medical charities, and perhaps a word here may be allowed to make it clear what we do. The Royal Medical Benevolent Fund exists for the purpose of giving "pecuniary assistance to distressed members of the medical profession, their wives, widows, and children." This is done in the form of annual maintenance grants, and in single grants to assist over temporary difficulties; a limited number of annuities are also provided for those who are aged or disabled. Such assistance is given alike to applicants who may have been either subscribers or non-subscribers.

May we here point out that all the sums given in annuities are provided by the invested funds, whereas the grants, for which a fresh application has to be made each year, are provided by the subscription income. Our ordinary standard grant is up to £26 per annum for dependents of doctors, but in some few instances we have exceeded that. We feel sure that all will agree that a paltry 10*s.* per week for a widow or daughter is not very much for our grantees, though we can assure you, Sir, that it is a perfect godsend to some of them, so dire is their poverty. That is why we want a subscription list giving us £25,000 per annum. We can then raise our standard grant to something more than £26.

Our organisation works in coöperation with the Medical Charities Committee, the Sir Charles Hastings' Fund, and Epsom College, and there is complete interchange of information about applicants. Whether a subscriber sends his subscription direct to us or allocates it to us via the British Medical Association is not of much moment, but we hope to enlist the personal interest of all subscribers in the work of the Fund. Augmenting the work of the Fund, mention must be made of the Ladies' Guild, which is an auxiliary of the Fund, dealing mainly with personal service, providing clothing, assisting in education of children, and giving help in sundry other ways to the beneficiaries. It collects its own funds by subscriptions, collections, and entertainments which are organised on its behalf from time to time, and gathered in last year £4000 for these purposes.

We need only say in general that the need for this medical charity is great, that it is never ending. To prove this, up to the end of June we have given in grants in the first six months of this year, 1933, £1023 more than in the corresponding period of 1932, and against that we have received £614 less in subscriptions than last year. This is a matter with which to deal most of us hold is a prime duty of the profession as a whole.

We have not attempted to describe the class of cases that come before us asking for help, as you are kind enough to publish from time to time notes of cases which have been dealt with by our case committee.

We are, Sir, yours faithfully,

THOS. BARLOW,
President.
LEWIS G. GLOVER,
Honorary Treasurer.
R. M. HANDFIELD-JONES,
Honorary Secretary.

Royal Medical Benevolent Fund, 11, Chandos-street,
Cavendish-square, London, W., July 22nd, 1933.

CLAUSTROPHOBIA IN THE PRISON POPULATION

To the Editor of THE LANCET

SIR,—In criticising a report of my recent speech on the Parker case in the House of Commons, Dr. Millais Culpin says that "Fear of great danger in bringing claustrophobia into legislation has one quality of a phobia, lack of rational foundation. Is claustrophobia in a prisoner to be regarded as something to be sternly ignored?" Surely it is most reasonable for Parliament to fear the great danger of unintelligent sympathy with a prisoner which may undermine the authority and power of the prison authorities. Surely some prisoners are desperate characters and some are shrewd enough to feign a phobia, if much publicity were given to the possibility.

But a genuine phobia is certainly not to be ignored. Even Dr. Culpin agrees with my statement that it may be "extremely difficult to be sure of that condition." The practical conclusion—and Parliament is no place for any other—is clearly that:

(1) The medical officers of prisons must be given all requisite attention and support from the authorities.

(2) Prison governors, with whom the ultimate responsibility within the prison rests, should, like army officers, have at least some elementary training in mental and general hygiene.

Of this the Minister was unable to give me any assurance.—I am, Sir, yours faithfully,

FRANCIS FREMANTLE.

Hatfield, Herts, July 17th, 1933.

To the Editor of THE LANCET

SIR.—May I congratulate Dr. Culpin on his timely and necessary criticism of the treatment of a prisoner with claustrophobia. If a patient shows signs of some physical disease, say fever, he is placed in hospital. If he shows signs of mental disease, say claustrophobia, he is locked in a cell. The medical officer who cannot distinguish the "objection of every prisoner to being shut in a cell" from the terrific emotion displayed by a claustrophobiac in the same circumstances must be suffering from extreme myopia. Anyone with a psychiatric sense can diagnose phobiacs by their behaviour in the streets or in the underground railway. An opportunity to hear the patient describe his symptoms and observe him while he is doing it should clinch the diagnosis. I agree that these cases may be difficult to diagnose from malingering, but as cases of doubtful physical disease are given the benefit of the doubt and treated in hospital, why should not psychical disease be similarly treated? Until, however, as Dr. Culpin would have it, psychopathology is elevated in the teaching curriculum to the same importance as physical disease so long shall we have cases as deplorable as the one reported in your columns.—I am, Sir, yours faithfully,

CLIFFORD ALLEN, M.B., D.P.M.

Dartford, July 15th, 1933.

EFFICIENT TREATMENT OF PERNICIOUS ANÆMIA

To the Editor of THE LANCET

SIR,—I was not present at the meeting of the Association of Clinical Pathologists, held in Manchester on June 24th, but have read with very great interest the papers communicated to the meeting, which were published in your issue of July 8th. Several of the points require emphasis, while others dealt with in your editorial are already known to us here.

For nearly five years we have been running a daily anæmia clinic in the Manchester Royal Infirmary, and have kept under observation over 400 cases of pernicious anæmia and some 300 microcytic anæmias. The majority of the cases of pernicious anæmia are seen and the blood examined at regular intervals of two weeks—two months. Their treatments are carefully controlled and their respective doctors kept informed of the blood condition and the maintenance dosage necessary. Thus none of these patients lack suitable and adequate supervision as long as they attend this clinic, where they are in the hands of our "anti-anæmia" team. Difficulties may arise where there is an unsympathetic panel committee or a lack of understanding on the part of the practitioner as to the absolute necessity of keeping the patient indefinitely on adequate doses of a potent anti-anæmic preparation. Fortunately, in Manchester, we very rarely meet these difficulties and, in consequence, most of our patients keep well and receive adequate maintenance therapy.

We have recently secured the coöperation of certain other hospitals in order to enlarge the available pernicious anæmia population. Owing to the unique opportunities available to this department we have carried out extensive investigations on pernicious anæmia, and have also paid particular attention to the potencies of the various anti-anæmic products available. Our observations have caused us considerable concern as to the present position. In the first place, it is very undesirable that commercial products should be tested indiscriminately by anyone without adequate controls, as I have frequently indicated in the past; at meetings of the section of therapeutics and pharmacology of the Royal Society of Medicine in January and March of this year I commented on the many fallacies which may occur.

Some time ago I reported the results of an investigation into the activities of some 16 stomach preparations—less than half of these being potent. The manufacturers of the remainder were informed privately of the inactivity of their products; some of them were willing to make the necessary improvements, but others, surprisingly, did not appear to be so solicitous for the welfare of their consumers. It is a simple matter to make and maintain the potency of oral liver and desiccated stomach preparations, but it is much more difficult to produce consistently potent parenteral liver preparations, and it has been found to be absolutely essential that each batch should be clinically tested before issue. This is obviously not being done by all the producers of these liver extracts, otherwise many of the products would not be offered for sale—with the resulting reports of so-called "cases of pernicious anæmia resistant to liver." I have been using parenteral liver preparations for two and a half years now on in- and out-patients, and I hope shortly to report the results. I must admit that I was very disappointed to see the *relatively* poor responses that Dr. Dyke obtained, but perhaps those were not his best cases. Thus he administered parenteral preparations in doses of 20 c.cm. upwards, at the rate of 2 c.cm. daily, with reticulocyte responses of less than 20 per cent. in the cases he quotes. From our experience he ought surely to have obtained at least double these figures. I have been using a preparation of which a total dosage of 6–8 c.cm. (equal to 60–80 g. fresh liver) was sufficient to raise the red blood-cells in a large number of controlled cases from below 1,000,000 to normal without further treatment, occasional maintenance doses of 2 c.cm. being then continued according to the condition of the patient's blood.

The question arises: how is the activity of such preparations to be stated? as being made from and equivalent to 10 g. of fresh liver per 1 c.cm. of extract, or as having a potency equal to many kilogrammes of orally administered fresh liver? I admit that all this must be bewildering to the practitioner who is not in a position to know the true potencies of all these products, but he will not go far wrong if he uses *only such anti-anæmic products* as are guaranteed by the manufacturers to have been clinically tested before issue. I am hoping that the time is not far distant when all such products will be required to undergo clinical trial and be passed as satisfactory before they can be offered for general use.

If I may add a note on the cord degeneration in pernicious anæmia, I would like to state that in the whole of our series I have never seen subacute combined degeneration develop in cases of pernicious anæmia on stomach treatment, but I have noted its occurrence when liver has been the remedy. It is too early to express any opinion relating to parenteral liver in this respect. In pernicious anæmia with initial cord lesions, stomach therapy has produced remarkable improvements in practically every case. Those with subacute combined degeneration without anæmia have not shown on the whole such good responses, but here again definite improvement has followed in nearly every case. So far, in our experience of a large series, desiccated stomach maintained in full doses has been easily the best and most satisfactory treatment from the point of view of results; it is, of course, too early yet to pass a considered opinion on the value of iron.

I am, Sir, yours faithfully,
JOHN F. WILKINSON.

The Royal Infirmary, Manchester, July 12th, 1933.

THE USE OF AVERTIN

To the Editor of THE LANCET

SIR,—With reference to the accounts in the press of the inquest on the woman who died at Guy's Hospital after enucleation of tonsils, I wish to say most clearly that the statement that I introduced avertin into this country is incorrect. The report on the use of this drug for anæsthesia was published by Dr. Joseph Blomfield and myself on behalf of the Anæsthetics Committee of the Medical Research Council, and contained the conclusions of other investigators besides ourselves.

Further, I must correct the impression that I administered the anæsthetic. In fact, I was not even aware that an operation was to be or had been performed on this patient.

I am, Sir, yours faithfully,
FRANCIS E. SHIPWAY.

York-terrace, N.W., July 15th, 1933.

THE POOR-LAW SICK WARDS

To the Editor of THE LANCET

SIR,—There may be perhaps, in England and Wales, some 40,000 surgical and acute sick accommodated partly in voluntary hospitals and partly in former poor-law sick wards; some 40,000 chronic sick accommodated in former poor-law sick wards; and some 40,000 persons, somewhat feeble but not so much so as to need nursing, accommodated in the non-sick adult wards of poor-law institutions (workhouses).

In your issue of May 27th I urged that the first outline of any orderly classification for a national system of hospitals must be a classification of surgical and acute in one class as against chronic in the other, whereas the only outcome of the Local Government Act of 1929 has been the device of associating some poor-law sick wards with one Act of Parliament and some with another—a device which is worse than useless because it deceptively suggests that some reasoned classification has been effected thereby. I further urged that as regards the three classes mentioned above, if the management or oversight of them must be shared out between two committees of the town council and two corresponding departments of the town hall staff—viz., public assistance and public health—then economy and administrative convenience require that the management of the chronic wards should be associated more closely with that of the non-sick poor-law wards than with that of the surgical and acute wards.

To this second proposition Dr. MacWilliam objects in your issue of July 8th, urging that the association between the chronic and the acute wards should be the closer of the two in order that transfers of patients to and fro between the chronic and the acute wards should be facilitated. To this I would reply that the transfers to and fro between the chronic wards and the non-sick poor-law wards are often the more numerous, and from the point of view of public economy are the more important. If the chronic wards are dissociated from the non-sick poor-law wards the chronic wards tend to become expensively encumbered with patients who do not really need nursing at all, and who would do as well or better in the non-sick wards. Further, in the greater part of the country there is not much choice in the matter. In London indeed and in half a dozen of the biggest towns there are a sufficient number of separate and suitable institutions to make it possible to make either arrangement, but we must necessarily use the buildings which exist, and in most towns the wards for surgical and acute patients stand apart in a voluntary hospital, whereas the wards for the chronic sick and those for the non-sick stand together as two wings of one poor-law institution.

It is unfortunate that the staff of a chronic hospital is so often desirous of undertaking the work of an acute hospital The staff tend to ask for the expensive apparatus which is only necessary for surgical and acute work. The councillors who form the managing committee of the hospital, not being medical men, find it very difficult to stand up against the specious argument that the newly so-named Public Health Act hospital ought to be at least as lavishly equipped as the neighbouring voluntary hospital. They will continue to encounter this difficulty until each hospital defines its medical aim and uses a title which indicates it instead of a title which merely indicates association with a certain Act of Parliament.

Dr. MacWilliam concludes his letter by alluding to "the faults of the old workhouse infirmaries." He does not specify any faults. No doubt workhouse infirmaries could and can be developed in various ways if the public are prepared to find more money, but this country has no need to be ashamed of the sick wards which they have been providing for many years past for the chronic aged sick, which compare favourably with those of other countries.

I am, Sir, yours faithfully,
W. D. BUSHELL,
Barrister-at-Law; formerly one of the General Inspectors of the Ministry of Health.

Cambridge, July 15th, 1933.

SUPRARENAL EXTRACTS

To the Editor of THE LANCET

SIR,—In your issue of July 8th is reported a meeting of the London Insurance Committee and a discussion on the administration of suprarenal cortical extract which took place; the value of the treatment is there questioned. There is definite and undeniable evidence in recent literature that this extract can save life when given in the crises of Addison's disease, and evidence is also accumulating that daily injections will keep patients alive and restore working capacity over a long period. This treatment has passed beyond the experimental stage, but extensive clinical trial is needed and this is hindered by present prices of the extract. No other preparation has proved to be of certain efficacy. A daily injection, sufficient to maintain improvement, costs anything from 10*s*. to 45*s*. a dose, and in emergency £10 to £20 worth of material may be required within a day or two. A supply of extract at lower cost is urgently needed for prolonged clinical trial under expert supervision. It was suggested in the report that the proper place for the trial of such treatment is in hospitals, but though, in emergency, free treatment may be provided, the greater financial problem is the provision of maintenance treatment, as is required in all cases of glandular deficiency.

We are much indebted to the manufacturers for putting this extract on the market, and the price must eventually be regulated by the cost of manufacture and the demand, which is no doubt at the present time exceedingly small; but if by increased use of the extract the present high mortality of Addison's disease can be reduced, the number of the suprarenal-deficient population will probably be found to be not inconsiderable. There must also exist cases of lesser degrees of deficiency which escape recognition but will be diagnosed more readily when attention is focused on the disease by the provision of a method of treatment. Further, when the extract is used to-day in prolonged treatment, the smallest dose that relieves symptoms is given; probably much larger doses would give better results and restore patients to working capacity.

Is it too much to hope that the cost of this life-saving preparation may be reduced, as has been the case with insulin, to a price which will make it available for all who need it?

I am, Sir, yours faithfully,
DOROTHY C. HARE.

Weymouth-street, W., July 13th, 1933.

THE ROYAL SOCIETY DISCUSSION ON "EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS"

To the Editor of THE LANCET

SIR,—In reply to Mr. Sampson Handley's letter in your issue of July 8th, I should like to be allowed to make the following comments. The limitations of the treatment of the subject in my opening paper were naturally imposed upon me by the scope of the discussion arranged by the Royal Society. There is no need for anyone, whether a member of the executive committee of the Imperial Cancer Research Fund or anyone else, to guess at my opinions on any aspect of cancer research. I think I have earned—and prize—a reputation for candour in scientific matters. So far as the content of Mr. Handley's letter is concerned, it is so fair a summary of my paper that I need do no more than express agreement. The last paragraph will not create any great disturbance in the minds of those who know Mr. Handley's affection for his lymph stasis hypothesis.

Mr. Handley, as a member of the executive committee, should know that he is in error in stating that the investigations here preclude the study of cancer in man by histological methods. The Imperial Cancer Research Fund appeals to the public as an organisation whose policy is the investigation of cancer as it occurs in man and animals, by every method which promises new information. The annual and scientific reports show how they endeavour to pursue this policy. I regret that such an implied criticism of the policy and conduct of the investigations of this Fund should have been put forward by a member of the executive committee without previous discussion with those responsible for the conduct of the investigations.

I am, Sir, yours faithfully,
J. A. MURRAY,
July 12th, 1933. Director, Imperial Cancer Research Fund.

IN HONOUR OF DR. G. F. STILL

To the Editor of THE LANCET

SIR,—In 1899 Dr. Still was appointed to the honorary staff of King's College Hospital. Up to that time no physician for diseases of children exclusively had ever been appointed at any of the teaching hospitals in London or indeed elsewhere. A children's ward had been in existence but it had been under the care of the gynæcologist or the most junior member of the staff who was required to hold it until he was promoted to the care of adults. Although there were children's hospitals in London, including Great Ormond-street, where Dr. Still has been physician, King's College Hospital was the first with a medical school to establish a special department for diseases of children. The example has been followed by many hospitals with medical schools. The recent White House report on children in hospitals shows the extent to which the importance of the subject is now appreciated in the United States. To those who have not been able to come into contact with the inspiring enthusiasm of Dr. Still's personal devotion to the welfare of children, his published works are available.

The impending retirement of Dr. Still from hospital work has seemed to some of his friends to be a suitable opportunity for some recognition of his pioneer work. We believe that there are many who would desire to do honour to him as a great physician and lover of children. We invite subscriptions for a presentation portrait of him. Mr. Gerald Kelly, R.A. has generously consented to give the picture provided that a sum of not less than £500 is subscribed for the endowment, with Dr. Still's approval, of a "Dr Still" cot at King's College Hospital. Subscriptions may be addressed to the treasurer of the Dr. Stil Portrait Fund, King's College Hospital, S.E. 5 A list of donors (but not amounts) will be presented to Dr. Still with the portrait.

We are, Sir, yours faithfully,
(Signed) BEATTY,
Chairman of King's College Hospital.
BLANESBURGH,
Chairman of the Delegacy of King's College
CHARLTON BRISCOE,
Senior Physician to King's College Hospital
J. F. CAMERON,
Master of Gonville and Caius College, Cambridge.
J. A. DRAKE,
Dean of the Medical School of King's College Hospital.
CHARLES A. FIFE,
President of the American Pædiatric Society
A. DINGWALL FORDYCE,
President of the British Pædiatric Association.
WILLIAM FRY,
Chairman of Dr. Barnardo's Homes.
W. GILLIATT,
Chairman of the Medical Board of King's College Hospital.
W. R. HALLIDAY,
Principal of King's College.
ESTHER HAMBLEDEN.
THOMAS HOLLAND,
Vice-Chancellor and Principal of Edinburgh University.
SPENCER LEESON,
Head Master of Merchant Taylors' School.
V. WARREN LOW,
President of the Royal Society of Medicine.
MACMILLAN,
Chairman of Great Ormond-street Children's Hospital.
FREDERICK F. TISDALL,
President of the Canadian Society for the Study of Diseases of Children.
FRANK WHITBREAD,
Treasurer of Guy's Hospital.

July 18th, 1933.

OBITUARY

SIR JAMES CRAIG, M.D. Dubl.

PAST PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND; KING'S PROFESSOR OF THE PRACTICE OF MEDICINE, DUBLIN UNIVERSITY

THE death of Sir James Craig on July 12th came as a shock to his friends. His health for the past six months had given rise to anxiety, but he had returned to a fair measure of activity recently, and few had known that a serious condition developed a few days before his death. He was some 72 years of age.

SIR JAMES CRAIG

[*Photograph by Lafayette*

James Craig came to Trinity College, Dublin, in the early 'eighties from Coleraine Academy, and he graduated in medicine and surgery in 1885. He became a Fellow of the Royal College of Physicians in 1891, was registrar of the College from 1897 to 1910, and president from 1919 to 1921. A year after his graduation he had been appointed assistant physician to the Meath Hospital, and in 1892 he was promoted to the full staff. On his appointment as King's professor of the practice of medicine in 1910 he migrated to Sir Patrick Dun's Hospital. He continued in his duties as King's professor and as physician to Dun's to his death. Throughout his life he took an active part in the business and public affairs of the profession. He was for several years a member of the council of the Irish Medical Association. He was for ten years—1895–1905—hon. secretary of the Leinster branch of the British Medical Association and later its president, and for some years he was a member of the council of the Association. In addition to his teaching appointments he was consulting physician to several hospitals and other institutions. He held the appointment of physician-in-ordinary to the last Lord Lieutenant of Ireland, Lord FitzAlan, who conferred on him the honour of knighthood. He was general secretary of the Royal Academy of Medicine in Ireland from 1904 to 1910, and subsequently its president.

In 1921 Sir James Craig was elected as one of the four representatives of Dublin University in the Parliament of Southern Ireland. When the Irish Free State was established and the representation of the University was reduced to three, he retained his seat, and he was an active and useful member of the Dáil up to his death. As one of the few medical members of that body he was recognised as speaking with authority in all matters concerning health. He introduced the first Public Charitable Hospitals Bill which legalised sweepstakes, and as he remarked lately "he was appalled at the result of his introduction of that measure." A Bill intended to relieve the temporary embarrassment of a few hospitals has led to a revolution in the whole hospital system of the country. Only a few weeks ago Sir James was among the most active of the critics in the Dáil of the amending Bill at present under discussion. Apart from his authoritative position in regard to health and hospital affairs, Craig's goodwill, kindliness, and industry made him a respected and well-liked member of the Dáil. Mr. De Valera, in expressing the regrets of the House in his death, paid his memory a graceful tribute. His death leaves a vacancy in the representation of Dublin University.

However busy he might be, Sir James Craig always found time to take his full share of work for his profession, and he was an excellent man on a committee. He was a good judge of what was practicable, and a shrewd observer of men and affairs. He was, moreover, a man of liberal opinions and ready to recognise the merits of those with whom he might differ, and he was at home with all sorts of people of all opinions and classes. In his work in the school and the hospital he showed sincere interest in the life and activities of his students. He looked at things from their point of view, and he loved to be associated with them in their sports. The college clubs had in him a generous supporter, and on a fine afternoon, if his work permitted he enjoyed nothing better than to sit in the College park watching a cricket match or running athletic competitions or, indeed, whatever might be going on.

Sir James Craig leaves a widow, three sons, and a daughter. His two elder sons, who were twins, are members of the medical profession.

JOHN HILL ABRAM, M.D., F.R.C.P. Lond.

EMERITUS PROFESSOR OF MEDICINE, UNIVERSITY OF LIVERPOOL

WE regret to announce the death of Dr. Hill Abram which occurred after a short illness at his residence in Hoylake on July 13th, in his 70th year.

DR. HILL ABRAM

[*Photograph by Chidley*

John Hill Abram was born at Waterloo, near Liverpool, his father being a corn merchant in the city. He was educated at the Liverpool Institute under the Rev. John Sephton, and entered the Liverpool Royal Infirmary as a medical student in 1882, when he immediately showed evidence of his quality, gaining the Derby exhibition in clinical medicine and surgery. He continued his studies at University College, London, and qualified as M.R.C.S. Eng. in 1887. Later he graduated in medicine as M.B. Lond. with first-class honours and proceeded to the M.D. in the following year—i.e., 1889. He returned to the Liverpool Infirmary as house physician, and throughout the rest of his life was connected with that institution. After a period as medical tutor he was elected honorary physician in 1902, while at the same time he was pathologist and later assistant physician to the Stanley

Hospital. In 1890 he was appointed assistant lecturer and demonstrator in pathology at University College, and in this position, which he held for many years, he obtained an unusually wide experience of disease and a sound knowledge of morbid anatomy, a knowledge which proved invaluable to him as a teacher and clinician. He became professor of therapeutics in 1906, in which year he was elected F.R.C.P. Lond; later he succeeded Prof. T. R. Glynn in the chair of medicine, which position he held up to 1924. As a teacher he was dogmatic and incisive, and his clear presentation of the clinical pictures of disease was much appreciated by his students. By virtue of his sound dogmatism and incisiveness the truths he taught were stamped indelibly on the attention of his hearers. His mind was critical rather than constructive and this very faculty made him a most valuable member of every committee on which he served, for he was quick to perceive the essentials of a problem, and when the time came for a decision he gave his opinion with no uncertain voice. In 1922–23 Abram was president of the Liverpool Medical Institution, and in 1928 he presided over the meeting of the Association of British Physicians, an honour which he felt and which he had thoroughly earned. For three years—1924–26—he served on the council of the Royal College of Physicians and also acted as its representative on the court of the University of Liverpool. At the time of his death he was president of the Liverpool University Club.

After a very busy and strenuous life Dr. Abram welcomed the leisure which followed his retirement from practice because it enabled him to devote more time to those interests which he had at heart. For decades his name had been a household word in Lancashire, Cheshire, and North Wales, and amongst his medical brethren he was recognised as a sound clinician, upholding the highest traditions of the profession. Those who knew Dr. Abram most intimately were aware of an unexpected simplicity in his nature which carried with it a special appeal, and which certainly endeared him to his students. "There can be no doubt that his life was one of happiness," writes a friend. "Successful in his career he reached the goal on which he had set his heart and found delight in the affectionate regard of his students, while happily conscious of the respect and confidence of his colleagues. Although in his 70th year there was an alertness and vigour both in mind and body which seemed to promise for him further years of happiness on his retirement from practice." He had gradually acquired a small but choice collection representative of the English school of water-colourists, and he was happy in serving as a coöpted member of the libraries, museums, and arts committee of Birkenhead, where his coöperation was much valued. He was unmarried, but throughout his life enjoyed the devotion of his sister, to whom all sympathy goes out in her loss.

JAMES ALEXANDER MITCHELL,
M.B. Glasg., D.P.H.

Dr. Mitchell, who died at Rondebosch on June 12th, had been chief health officer for the Union of South Africa since 1918 until his retirement owing to ill health just over a year ago. He was also secretary, since its creation in 1920, of the department of public health. Dr. Mitchell was born in Co. Tyrone in 1876, and was educated at the Academic Institution in Londonderry, taking his medical course at Glasgow. Soon after qualifying in 1898 he went out on Lord Lister's nomination as research pathologist to the leper asylum on Robben Island. When he was there bubonic plague invaded the colony, and he was appointed medical superintendent to the plague hospital and quarantine station at Maitland during the severe epidemic of 1901. This soon led on to his becoming assistant medical officer of health for the Cape Colony, when his administrative ability had full scope. Amongst other appointments he held that of deputy chairman to the Union council of public health, chairman to the Union leprosy advisory committee, and membership of the South African medical council. During the war he held rank as lieutenant-colonel with the South African Medical Corps, acting as A.D.M.S. on lines of communication. He was a fluent writer on public health subjects, one of his best-known papers dealing with the growth of the native races in South Africa. Recently he was instrumental in promoting legislation on health and medical registration, and for his devoted work in this direction his name will stand high in the annals of medicine in the Union.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Nutrition of School Children

VIEW OF THE BOARD OF EDUCATION

ON July 12th in the House of Commons on a vote for the salaries and expenses of the Board of Education, Mr. RAMSBOTHAM (Parliamentary Secretary to the Board) spoke of the relation of education to the unemployment problem; the steps that were being taken could be divided into two categories. The first was to prevent the ill-effects upon the children of the unemployment of their parents, and the second was to mitigate the effect of unemployment on the children themselves after they had left school. With regard to the first category, the Board had somewhat increased the item for special medical services, and they were prepared to approve of any urgently needed extensions when the medical arrangements were obviously incomplete. Another measure was concerned with the provision of meals. The same provision had been made in this respect as was made last year. The reason was that after the most careful examination they did not find evidence of increasing malnutrition. There again, however, if the local authorities had good grounds for extending their arrangements for the provision of meals, they would find the Board very sympathetic.

The statement, he went on, that medical officers of health had reported a steady deterioration in the children attending the schools was quite inaccurate. For instance, the chief medical officer of the Board, Sir George Newman, in his report last autumn, said that there was as yet no evidence of a lowering of health or of impaired physique. The report of the chief medical officer was borne out by the reports of the school medical officers which the Board had received brought up to Christmas, 1932, and in point of fact out of 268 reports received up to date only 17 gave any instances of increasing malnutrition. The report of the school medical officer for London had recently been published. According to it only one more in a thousand children was found to have subnormal nutrition compared with 1931, and the report pointed out that this fractional increase was due to the effects of a widespread epidemic of measles which lowered the vitality of the younger children. The report went on to show that the decrease in the percentage of subnormal nutrition for 1932 was quite substantial as compared with 1925. Children over 7 were found to be in better condition in 1932 than in 1931. These figures included all children with nutrition below the average. They were not confined to children suffering from severe malnutrition. Figures were given showing that out of 180,000 children examined only 29 were found to be very ill-nourished. Malnutrition in a good many cases was due to organic defects and not necessarily to inability to obtain food. With regard to other areas, many of them had suffered more distress than London, but none the less there was no evidence of diminution in health. For 1932, as compared with 1931, some areas showed increases and others decreases, and on balance there was practically no change. It was interesting to observe that decreases were shown in Glamorganshire, Monmouthshire, Cardiff, and Newport. Broadly speaking, his information went to show that throughout the country as a whole the number of cases of malnutrition had fallen from 11·2 per 1000 in 1931 to 10·7 in 1932. It appeared that on the whole the tide had definitely turned.

SOME DOUBTS IN MEMBERS' MINDS

Mr. MORGAN JONES said he was sorry that Mr. Ramsbotham had made no reference to the nursery school movement. If the hon. gentleman's answer was that in times like these the nation could not afford such things he (Mr. Morgan Jones) would say that the nation could not afford to be indifferent to the requirements of the children, not merely on the educational side, but the requirements of children at a delicate age before they entered on the formal course in the elementary schools. The statistics which Sir George Newman so admirably presented year after year indicated that children at the early stage of formal elementary school life were often found by the very beneficent school medical service to be in a condition which, if attended to medically at an earlier age, would avoid a good deal of subsequent expenditure of public money. He (Mr. Morgan Jones) was very sorry that this very mistaken policy of economy, which he called educational waste, had arrested the development of the nursery school movement, though he hoped only for a very short time. He had never, either in that House or outside, committed himself to the statement that there was a very large amount of malnutrition among children, partly because he had not the information at his disposal, but he was rather surprised at the statement of Mr. Ramsbotham that day. He knew the area of South Wales pretty well, where there was a very great amount of poverty and economic distress. He confessed that he found it very difficult to believe—though he did not throw any doubt on the certificates received by the Board from medical officers—that there was no distress or need for special provision for feeding the children in those areas. The malnutrition of mothers did not concern the Board of Education primarily, except to this degree, that if a case existed for the provision of nutrition for the child through the medium of the local education authorities such feeding would save malnutrition on the part of the mothers. He hoped that the Board would keep their eyes on the question of the physical necessities of the children in such areas as South Wales.

Mr. COVE referred to the continued bad condition of many schools in the country. About 1925, he said, an inspection took place and the schools were divided into three categories—A, B, and C. A total of 2827 schools were black-listed. In category A, the schools were very bad and the Board agreed that they were incapable of improvement and should be razed to the ground. There were 679 such schools. But in spite of that one-fifth of these schools had been patched up. Only two-fifths of these bad schools had been closed since 1925, and the other two-fifths with their unremedied defects were still in existence. Was it a tale of progress that schools dangerous to the health of children should still be in existence by the hundred? Of the schools in category B, which were supposed to need substantial improvement, only one-half had been remedied since 1925. Category C schools needed minor alterations, but 60 per cent. of them had not yet been done. The bulk of the problem provided by the black-listed schools had therefore still to be faced. He was not so satisfied as Mr. Ramsbotham that there was not malnutrition; as a matter of fact he was afraid that malnutrition did exist to an appreciable degree. He asked the Board of Education not to rely on local reports—he said that without casting any aspersion wholly or solely on the reports of local medical officers—but the Board should instruct their central officers to examine the position. It was the business of the central Government to see that malnutrition did not take place in the child life of the country, and they could not hide behind any local reports. The burden of feeding necessitous children should not be thrown on the local rates. He believed that the results of the Government's policy of economy would be seen in the deterioration of the physique, the crippling of the mental powers, and the starvation of the general outlook of the children, youths, and manhood of the future.

Mr. RAMSBOTHAM, replying to the discussion, said that it was quite impossible for the Board to instruct its own officers to make reports after investigation in particular areas with regard to malnutrition. The Board was bound to rely on the best information it could obtain from the most responsible officials in various areas. As regarded the black-listed schools, in a number of cases they were voluntary schools, and the House was aware of the difficulty of dealing with the matter with the law as it stood. The power of the State to deal with the non-provided schools was strictly limited.

University Degrees Bill

In the House of Lords on Thursday, July 13th, Lord JESSEL moved the second reading of the University Degrees Bill. He said that the former Bill on this subject which he had introduced in their Lordships' House had been criticised because of its bad drafting, and he had therefore withdrawn it and brought forward the present measure. There was nothing to prevent anybody putting certain letters after his name implying that he had a university degree. In the opinion of those who had earned those degrees, and especially the members of the Scientific Workers' Association, it was a great hardship that others should come into the market with unauthorised degrees and cut the ground from under their feet. It was very wrong also that corporations should be allowed to sell these degrees, which deceived a great many people. The Bill said that any corporation which granted these unauthorised degrees should be submitted to a penalty. A penalty was also imposed on "any person who uses or assumes" a degree to which he was not entitled. In the first schedule to the Bill there was a list of the corporations that were allowed to give degrees. First, there was the Archbishop of Canterbury; then followed the various great universities, and there was a provision that if a new university came into being it should have the same powers as existing universities. In the second schedule were stated the various degrees. There had been some criticism made about that. Some of the universities, it was said, might grant degrees other than those already existing, but that, of course, was a Committee point which could easily be put right if the Bill was read a second time. Lord Cecil had made certain well-founded criticisms on the last occasion with regard to the penalties, and he hoped that Lord Cecil would see that his objections had now been removed. Another alteration was that the Bill did not now involve any liability on the President of the Board of Education. It might be said that this was not a matter of great moment, but very few people who had these bogus degrees were ever challenged and they "got away with it" quite happily. Only the other day there was a case in the law courts—Walton v. Lief—and in cross-examination the defendant was asked to explain certain letters after his name. It transpired that M.N.C.A. meant Member Nature Cure Association; that was a degree conferred upon him by the British Society of Naturopaths. There was also a widely circulated pamphlet in which a man called himself D.C.Sc., Physician B., and he went on further to describe himself D.S., D.O. (London), F.R.S. There was no such degree in the University of London; yet this sales circular was spread broadcast and induced many people to buy this article in the belief that it was vouched for by some eminent medical authority. He thought that the Bill would deal with a great scandal, and would be of great benefit to those who were really entitled to the degrees for which they had worked hard, and would stop the sale of unauthorised degrees.

Lord PONSONBY supported the Bill.

The Earl of IDDESLEIGH said he was doubtful if the Bill would effectively benefit the public, because a man would still be entitled to use the letters of a bogus degree obtained abroad provided he placed the name of the bogus university after those letters. As many of these bogus universities had extremely convincing names, greatly resembling the names of real universities, he doubted whether the public would be much protected by the Bill. He hoped Lord Jessel would give some consideration to these objections, and perhaps amend the Bill before the Committee stage.

Lord IRWIN (President of the Board of Education) said there had not yet been any opportunity of consulting the universities about the Bill, and he had no doubt that it would be for their convenience to have more time to examine the proposals. He was glad, therefore, that the Committee stage would not be taken until after the summer adjournment. If the Bill was read a second time the Home Secretary and the Lord President of the Council would desire to have certain amendments considered on the Committee stage. Subject to these considerations the Government had no desire to oppose the second reading.

The Bill was read a second time.

Medical Services in India

On July 17th in the House of Commons on a vote for the Department of the Secretary of State for India, Sir SAMUEL HOARE said that an almost incredible amount of suffering and inefficiency in many Eastern countries was due to the low standard of living. Any efforts, therefore, that were successful in raising the standard of health redounded not only to the credit of the men who made those efforts but in a special manner to the future prosperity of the country in which those efforts were made. In India they had a very fine record in the field of health administration. He was not sure if hon. Members always realised the debt of gratitude that for many years past not only India but the whole world had owed to the pioneer work of the Indian Medical Service. Many of the most notable achievements in the field of surgery and medicine had been due to the experiments and the experience of officers in the Indian Medical Service. During the last 12 months, in spite of many exceptional difficulties—the difficulty, for instance, of finding the funds necessary for medical research and medical administration—the record had been on the whole very satisfactory. A great Institute of Preventive Medicine had been opened in Calcutta. Its foundation was due in the first instance to the beneficence of Mr. Rockefeller, and its maintenance came within the responsibility of the Government of India. He believed that the work of this Institute was going to be of immense value in the preventive field in India in the future. Certain experiments had recently been made in India with a view, first, to controlling the spread of malaria; and, secondly, to preventing the relapses of the patient after he had begun to recover. The scourge of malaria was so great in India that probably in any given year there might be as many as 10,000,000 people being treated for that disease. It was probably within the mark to say that between 1,000,000 and 2,000,000 people died from malaria in India every year. What an appalling scourge, and what an opportunity for the development of medical science! He was glad to be able to tell the Committee that a new drug had been discovered, called atebrin, and, as far as his advisers could judge, it looked as though it would be most effective in preventing a relapse, which had always been the danger of malaria epidemics. He gave those two instances to the Committee—he could give many others—to show how very active were the efforts of the Indian Medical Service in the field of health and how, year after year, they were meeting with the success they deserved. (Cheers.) They could not control the weather, but they could to a great extent control its effects. It was within the memory of everyone that India was periodically subjected to terrible famine due to drought, which swept away millions of its population. He was glad that, as a result of the work that had been carried out in the field of irrigation, that chapter was for ever ended. They could not control droughts, but they could ensure by a system of irrigation that the canals should still be filled with water even in the dry seasons, and work was being continued on various irrigation projects.

TRANSFER OF HOSPITALS

The Duchess of ATHOLL said that Sir S. Hoare had praised the health administration of India, but he had said very little about the hospitals. She had had brought to her notice lately by a very senior officer of the health service in one of the Provinces, who had recently retired, the fact that an increasing number of hospitals had passed under the control of local authorities, with a very grave loss of efficiency. They would all agree with the praise which the Secretary of State had given to the Indian Medical Service, but the right hon. gentleman had not reminded the House how largely the Indian Medical Service was being replaced by the provincial medical service, or the British medical officer in the Indian Medical Service by the Indian. It had lately been said to her by more than one person who had lived long in India that the rank and file were very reluctant to go to a hospital of which the presiding officer was not a European. While many Indians made admirable medical officers on the technical side they tended to be below the British standard in the administration and control of a staff.

After further debate,

Mr. BUTLER, Under-Secretary for India, replying to the discussion, said that there had lately been a definite improvement in the recruitment of Government medical officers so far as numbers were concerned, and on the whole the quality of the candidates had also improved. The number of European candidates had increased from 13 in 1931 to 23 in 1932, and during the first six months of the present year 27 had already been appointed. There was every possibility of a larger recruitment this year than during any year since the war.

The debate was adjourned.

Road Accidents and Payment to Hospitals

In the House of Lords, on July 18th, the amendments proposed by the Select Committee to Lord Danesfort's Road Traffic (Compensation for Accidents) Bill, were considered.

In moving that the House should go into Committee on the amendments, Lord DANESFORT said that as the Bill emerged from the Select Committee, Clause 3 amended Section 36 of the Road Traffic Act, 1930, with respect to payments to hospitals. The clause now provided that where a payment was made by the authorised user or owner of a vehicle in respect of the death of, or bodily injury to, any person through the use of the vehicle, and the dead or injured person had, to the knowledge of the authorised insurer or owner, received treatment at a hospital, the hospital expenses reasonably incurred in such treatment should be paid by the authorised insurer or owner, after deducting from such expenses any money actually received by the hospital in payment of a specific charge for such treatment.

The Earl of Plymouth said that the Government regarded the report of the Select Committee as being a very valuable provision towards the solution of the admittedly difficult problem of compensation in the case of motor accidents. The Government had not yet had an opportunity to consider the clauses, but he thought the Select Committee had considerably improved the Bill. There was, however, no hope of any legislation this year.

The Committee agreed with the amendments of the Select Committee.

Royal Assent

In the House of Lords on July 18th the Essex County Council Bill and the Rent and Mortgage Increase Restrictions (Amendment) Bill received the Royal Assent.

HOUSE OF COMMONS

WEDNESDAY, JULY 12TH

London Omnibus Schedules and Public Safety

Mr. Lovat-Fraser asked the Minister of Transport (1) if he was satisfied that the new time schedules adopted by the London General Omnibus Company were being maintained without endangering public safety; and (2) if he was aware that since the speed-up of London motor omnibuses three drivers had collapsed at the wheel and one died on the way to the hospital; whether the death- and sickness-rates among omnibus drivers had gone up since the speed-up; and whether the number of accidents involving omnibuses had increased.—Mr. Oliver Stanley replied: I am informed that the introduction of the full programme of new time-tables was spread over the period October, 1932, to February, 1933. Whilst there has been a slight increase in the number of collisions in the first six months of this year compared with 1932, the figures are appreciably better than for 1931. There appears to be no evidence to suggest that the new time schedules have in any way endangered public safety. I am also informed that the death-rate amongst drivers was less in the six months ended June, 1933, than in the two preceding years, and, although four drivers have died recently whilst on duty, I understand that in none of these cases was the nature of the work held to be responsible for the fatality. The average sickness during the periods October-December, 1932, and March-June, 1933, was lower than any corresponding period for the previous three years. The incidence of the influenza epidemic in January and February last precludes useful comparison with the sickness in those months in previous years.

Age of Marriage and Consent in Palestine

Miss Rathbone asked the Secretary of State for the Colonies (1) whether his attention had been directed to paragraph 182, chapter 18, of the Criminal Code Bill, 1933, for Palestine, which proposed to fix a minimum legal age for the marriage of females at 13, but to permit marriage below this age under specified conditions: whether he was aware that the proposal to fix so low a marriage age, and even then to make it subject to a wide range of exemptions, was arousing dismay among many in Palestine who were anxious for the suppression of child marriage; and what action he proposed to take about it; (2) whether he would procure the appointment of a committee in Palestine, including representatives of medical opinion and of women's opinion, to investigate and report as to the extent and effects, physical and social, of child marriage in that territory.—Sir P. Cunliffe-Lister replied: My attention has already been drawn to the provision in the Palestine Criminal Code Bill to which the hon. Member refers, and I am in communication with the High Commissioner for Palestine on the subject. No decision will be taken until the matter, including the question of appointing a local committee, has been fully considered in consultation with the High Commissioner.

THURSDAY, JULY 13TH

Boils and Carbuncles among Miners

Mr. Tinker asked the Home Secretary if his attention had been drawn to the condition of coal-miners who, through working in hot mines, were subject to boils and carbuncles, which in many cases caused incapacity and loss of work; and if he would inquire into it to see if there was sufficient evidence to include this in the schedule of diseases under the Workmen's Compensation Acts.—Mr. Hacking (Under Secretary, Home Office) replied: My right honourable friend has not yet had occasion to consider this question, but he will consult the Secretary for Mines in the matter.

Cost of Mental Hospitals

Mr. David Grenfell asked the Minister of Health the items included in the Board of Control's estimate of £500 as the capital cost of providing a bed in a mental hospital; what new buildings had been erected in the past year under their supervision; and what further buildings were in contemplation.—Sir E. Hilton Young replied: The answer is as follows: the estimate of £500 was made in 1931, and I am advised that the comparable figure to-day would be about £440. The figure was for a bed in a complete new mental hospital, and included a proportion of the estimated initial cost of the following items: (*a*) Patients' residential accommodation; (*b*) ancillary premises such as church, workshops, recreation hall, laundry, stores, kitchens, offices, power station; (*c*) accommodation for residential staff; (*d*) engineering services for heating, lighting, drainage, and water-supply; (*e*) roads and laying out of grounds. It did not cover cost of land or furnishing. Figures are not available for the new buildings erected in 1932, and I am not in a position to say what further buildings are in contemplation. In 1932 the Board of Control approved plans for the provision of 979 beds, and during the first six months of the present year plans for 999 beds, and they have under consideration plans for approximately another 3000 beds. These schemes are, however, with very few exceptions, for additions or alterations to existing mental hospitals, and the cost will not approach the sum of £500 per bed.

Public Assistance (Expenditure)

Mr. Tom Smith asked the Minister of Health the total expenditure incurred in public assistance to able-bodied poor in Leeds, Sheffield, Rotherham, and Barnsley, for each of the last five years respectively.—Sir E. Hilton Young replied: The returns furnished to my department do not show separately the expenditure on out-relief to the able-bodied poor, but the following statement shows the expenditure on out-relief to persons ordinarily engaged in some regular occupation and their dependants during each of the last three financial years:—

Year ending March 31st.	Expenditure on out-relief in money and kind given by the councils of the under-mentioned county boroughs to persons ordinarily engaged in some regular occupation and their dependants.			
	Leeds.	Sheffield.	Rotherham.	Barnsley.
	£	£	£	£
1931	71,930	189,355	13,109	25,816
1932	81,479	295,102	16,118	13,336
1933 (approx.)	128,300	436,000	23,900	22,800

The unions which, before the operation of the Local Government Act, 1929, included the areas of the county boroughs mentioned were not co-extensive with those boroughs, and exactly corresponding figures cannot, therefore, be furnished for the years ending March 31st, 1929 and 1930.

Health Insurance and Medical Benefit

Mr. Kirkwood asked the Minister of Health whether he would take steps to preserve the right of medical benefit to a group of persons suffering from prolonged unemployment whose right to benefit would otherwise cease at December, 1933.—Sir E. Hilton Young replied: No, Sir. As I have said in reply to previous questions, this matter was fully debated during the passage of the National Health Insurance Act of last year, and the Government are not prepared to reopen it.

Block Grants Policy

Mr. MAINWARING asked the Minister of Health whether, in view of the uneven manner in which the incidence of certain services fell upon local authorities, he was prepared to reconsider the whole system of block grants.—Sir E. HILTON YOUNG replied: No, Sir. The distribution of the block grant under the Local Government Act, 1929, is made under a formula devised to meet the varying needs of local authorities, and the Act itself provides for an investigation of the working before the end of the second fixed grant period.

MONDAY, JULY 17TH

Medical Arrangements for Deported Indian Prisoners

Mr. DAVID GRENFELL asked the Secretary of State for India whether the government of India had received any report from Colonel Barker, inspector-general of prisons, Punjab, as a result of his mission to the Andamans to inquire into the medical arrangements there for prisoners on hunger strike; and whether he could state the conclusions of the report.—Sir S. HOARE replied: This officer was sent not to make a formal inquiry and present a report, but to consult with, and advise, the local authorities. I have not yet received any detailed information regarding his visit.

Medical Advice to Ships by Wireless

Colonel SANDEMAN ALLEN asked the Postmaster-General whether he would arrange that British vessels would be able to ask for medical advice through coast wireless stations free of all wireless charges, in conformity with Sweden and other nations.—Sir KINGSLEY WOOD replied: The practice varies in different countries. Some, like Sweden, make no charge for transmitting radiotelegrams asking for medical advice; in others, including France, Germany, and Great Britain, such messages are charged for. Under Section 34 of the Merchant Shipping Act, 1906, the owner of a British ship is liable for the expense of providing medical advice for sick or injured members of the crew; and I do not think there is any justification for transferring the cost of messages asking for such advice from the shipowner to public funds.

Women Employed in Indian Coal Mines

Mr. TOM SMITH asked the Secretary of State for India how many women were employed underground in coal-mines in Bengal, Bihar, Orissa, and the Central Provinces, in 1930, 1931, and 1932 respectively.—Sir S. HOARE replied: The number of women employed underground in coal-mines in Bengal, Bihar, and Orissa, and the Central Provinces in 1931 was 16,632, as compared with 18,287 in 1930. Figures for 1932 and 1933 are not yet available.

Spirits Distilled in England and Scotland

Dr. SALTER asked the Chancellor of the Exchequer the number of proof gallons of spirits distilled in England and Scotland during the year ended March 31st, 1933.—Mr. HORE-BELISHA (Financial Secretary to the Treasury) replied: The number of proof gallons of spirits distilled in England and Northern Ireland and in Scotland during the year ended March 31st, 1933, was as follows:—

	Quantity distilled. Proof gallons.
England and Northern Ireland ..	25,109,505
Scotland	5,926,014
Total, United Kingdom.. ..	31,035,519

TUESDAY, JULY 18TH

Public Health Services in Scotland

Mr. GUY asked the Secretary of State for Scotland whether the committee of inquiry into public health services had commenced its investigations.—Mr. SKELTON replied: The first meeting of the committee on Scottish Health Services has been convened for July 28th.

INTERNATIONAL SOCIETY OF UROLOGY

THE fifth triennial congress of the society was held at the house of the Royal Society of Medicine, 1, Wimpole-street, under the presidency of Sir John Thomson-Walker, from July 11th to 15th. It was attended by a large number of distinguished urologists; altogether 19 nations were represented.

The membership of the society is strictly limited to about 400. A definite quota is allotted to each nation, which it is not allowed to exceed. The quota for Great Britain is 40, that for the United States is 50; members belonging to smaller nations may be limited to 10 or even 5. It is customary to select three subjects for discussion at each congress, which are announced on the last day of the preceding congress. The opening papers, which are designed to be authoritative résumés of our present-day knowledge of the subject, are printed and distributed to the members before the congress meets. The remarks of speakers in the discussions are collected and printed in a second volume of the proceedings.

The first subject selected was

TUMOURS OF THE RENAL PELVIS AND URETER

It was introduced by Prof. Salvador Pascual (Madrid). Prof. Van den Branden (Brussels), and Mr. J. Swift Joly (London). Seventeen members took part in the subsequent discussion. The conclusions reached were: that three-quarters of these tumours are papillary, and one-quarter are solid infiltrating growths; about half the first group are considered to be benign on histological examination, but all of them are potentially malignant; these tumours have a great tendency to produce secondary growths in the lower portions of the urinary tract, and a complete nephro-ureterectomy offers the best chance of a "cure." The solid infiltrating tumours are frequently associated with stone and infection of the kidney. They do not tend to give rise to implants in the lower urinary tract, but are very malignant and form extensive metastases in the internal organs, and prolonged survival is very rare.

The second subject was

PYELOGRAPHY BY THE DESCENDING ROUTE

It was introduced by Prof. A. von Lichtenberg (Berlin), Prof. C. Ravasini (Trieste), and Mr. R. Ogier Ward (London). Prof. von Lichtenberg confined himself to the chemical and biological experimental work carried out by himself and his assistants. The clinical side of the question was discussed by the other speakers. The conclusions generally reached were: that descending pyelography is an invaluable addition to our diagnostic methods, since it not only gives a good idea of the anatomical condition of the kidney, but also of its physiological function. In the case of suspected renal tumour it was generally thought that instrumental pyelography gives more information, as here information as to the anatomical changes in the organ is all that is required. Twenty-one members took part in the discussion.

The third subject was the

SURGERY OF THE NECK OF THE BLADDER

The surgery of the ordinary senile prostatic enlargement was definitely excluded. The subject was introduced by Prof. G. Marion (Paris), Prof. J. Weijtlandt (Amsterdam), and Mr. Kenneth Walker (London). Twenty-seven members took part in the discussion. Prof. Marion divided obstruction occurring at the neck of the bladder into two types, the congenital and the acquired. The first type he considered to be due to hypertrophy of the internal sphincter, analogous to hypertrophy of the pylorus in infants, the second being a sclerosis caused by previous inflammation of the prostate and posterior urethra. He recommended an open operation for the relief of the obstruction, and claimed that it was not only the most efficient method of treatment, but that it was attended with an almost negligible mortality. The other speakers generally advised per-urethral resection of the obstruction, claiming that the results are as good as those obtained by open operation, and that the period of convalescence is considerably shortened.

On the last day of the congress, Dr. Edwin Beer (New York) read a paper on the value of

URETERAL RE-IMPLANTATION IN THE BLADDER

in which he combated the opinion held by many of the French urologists that the kidney tends to atrophy after re-implantation of its ureter. He showed a large series of intravenous pyelograms taken several months after operation, in which he demonstrated that not only does the kidney continue to function, but also that previous dilatation gradually recedes until the renal pelvis and ureter ultimately return to their normal state.

PUBLIC HEALTH SERVICES

School Meals in London

We learn from a report presented to the London County Council on Tuesday last that during the year 1931–32 the Council spent out of the education rates on providing meals for children in elementary and special schools the sum of £106,209, of which £37,655 was recouped from the parents and £1696 from the public assistance account. The Council, it should be remembered, as local education authority has no power to spend public money on meals. Before children are fed out of the education rates a local authority must resolve that they are unable by reason of lack of food to take advantage of the education provided and that private funds are not available or are insufficient to defray the cost. The L.C.C. has passed such a resolution every year since 1909, but of the 350 local education authorities in England and Wales about half have not exercised this power. The number of children in London special schools supplied with meals of one kind or another was 10,000, the parents paying the standard contribution in about 6000 of these. To children in ordinary elementary schools during March, 1933, meals were given as follows :—

	On payment.	Free.
Dinners	1,220	7,648
Milk	14,256	12,256
Cod-liver oil and malt ..	4,085	2,248

In addition about 100,000 children obtained milk in school daily from voluntary milk clubs conducted by the teachers. Liability was accepted by the public assistance committee for the dinners of 497 children referred to under the heading "free" above. The responsibility of deciding which children are in need of school dinners is entrusted to the care committees. Children in need of milk or cod-liver oil are selected by the school doctors. The dinner menus are drawn up by the Council's inspector of domestic economy after consultation with the school medical officer. Sample dinners are submitted to the Council's chemist for testing purity and food value. For some years past the average cost of the raw food in a child's dinner in London has been round about 4*d*. This is the standard charge to parents who are in a position to pay.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 8TH, 1933

Notifications.—The following cases of infectious disease were notified during the week :—Small-pox, 15 (last week 14); scarlet fever, 2211; diphtheria, 749; enteric fever, 74; acute pneumonia (primary or influenzal), 507; puerperal fever, 40; puerperal pyrexia, 98; cerebro-spinal fever, 24; acute poliomyelitis, 11; acute polio-encephalitis, 1; encephalitis lethargica, 5; dysentery, 5; ophthalmia neonatorum, 77. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 11th–12th was as follows : Small-pox, 36 under treatment, 7 under observation (last week 35 and 1 respectively); scarlet fever, 1925; diphtheria, 1653; enteric fever, 14; measles, 519; whooping-cough, 378; puerperal fever, 25 (plus 9 babies); encephalitis lethargica, 251; "other diseases," 216. At St. Margaret's Hospital there were 23 babies (plus 12 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 22 (1) from measles, 4 (0) from scarlet fever, 27 (2) from whooping-cough, 22 (6) from diphtheria, 35 (5) from diarrhœa and enteritis under two years, and 13 (4) from influenza. The figures in parentheses are those for London itself.

Nottingham and Cardiff each reported one death from enteric fever. Measles was fatal in 5 cases each at Liverpool and Rhondda, 4 at South Shields. Six deaths from whooping-cough occurred at Liverpool, 2 each at Bootle and Salford. Liverpool also reported 4 deaths from diphtheria. Of the deaths from diarrhœa outside London, 6 were reported from Liverpool, 2 each from East Ham, Bradford, Leeds, Manchester, Middlesbrough, Salford, Sheffield, and Sunderland.

The number of stillbirths notified during the week was 252 (corresponding to a rate of 39 per 1000 total births), including 49 in London.

THE CONGRESS ON RENAL INSUFFICIENCY AT EVIAN. The twenty-sixth Voyage d'Études Médicales starts on Sept. 5th at Vals, and the itinerary includes Grenoble, Uriage, Briançon, Challes, and Aix. Geneva, Annecy, and Chamonix will also be visited, the voyage ending on Sept. 17th at Evian. The tour will be under the scientific direction of Prof. Villaret (Paris) the director, Prof. M. Piery (Lyons), a regional director, and Prof. Charbrol (Paris) an assistant director of the V.E.M. The voyage has wisely been made to fit the arrangement for the congress on renal insufficiency at Evian, organised by the Medical Society of Evian, Prof. A. Lemierre acting as president and Dr. Etienne Bernard as secretary-general. A number of authoritative communications have already been promised for discussion at sessions which will take place on the morning and afternoon of Monday and Tuesday, Sept. 18th and 19th and on the morning of Wednesday, 20th. All who intend to make contributions to the debates should address Dr. Bernard at Evian before Sept. 1st. Medical men, French or foreign, will be admitted as congressists upon a subscription of Frs. 100, and from Sept. 10th onwards the railway companies concerned will charge only half fares. Congressists will be received at the Evian hotels during and for a period after the sessions at a special pension rate of Frs. 50 per day, and for those who thus wish to prolong their visit excursions by car have been organised to Chamonix, the Mer de Glace, Interlaken, Lausanne, Geneva, and many other well-known centres. Further information will be given by the Federation of the Health Resorts of France, Tavistock House North, London, W.C.

MEDICAL NEWS

University of Oxford

At recent examinations the following candidates were successful :—

DIPLOMA IN OPHTHALMOLOGY

K. G. Das, Hofmeyr de Villiers, D. C. Macdiarmid, Samuel Smyth, W. H. Summerskill, and F. O. Walker.

The Theodore Williams scholarship in anatomy has been awarded to D. Whitteridge. The board of management have recommended that the Theodore Williams scholarship in pathology shall be divided equally between J. C. Prestwich and R. G. Silver. The Welsh prize for anatomy has not been awarded.

University of Cambridge

At recent examinations the following candidates were successful :—

D.M.R.E.

Part II.—S. S. Alam, F. C. Golding, G. A. Grant, Elizabeth M. Haworth, R. M. Patterson, Mohan Singh, Elizabeth M. F. Taylor, and A. R. Thomas.

University of London

At a meeting of the court on July 12th. a resolution was passed conveying cordial thanks to the Rockefeller Foundation for a further generous donation to University College. The Foundation, learning of the difficulties of accommodation experienced by Mr. A. V. Hill, Foulerton professor in physiology, and his research students, have made a grant of £4000 for the reconstruction and equipment of additional laboratories of the department of physiology at the College, to accommodate expansion of Prof. Hill's work in biophysics.

The court learnt with gratification of grants made by seven more of the City Companies—viz., the Coopers, Cooks, Curriers, Fanmakers, Frame-work Knitters, Gardeners, and Tin Plate Workers—towards the ceremonial hall to be built on the University's new site in Bloomsbury. Thanks were also conveyed to Mr. A. Horace Bird, clerk to the Tylers and Bricklayers' Company, for a personal gift for the same purpose, and to the Public Trustee for a grant from the John William Berry bequest.

At recent examinations the following candidates were successful :—

D.P.H.

R. J. I. Bell, W. L. Blakemore, H. G. H. Butcher, C. E. Caudwell, R. C. Cohen, J. G. Currid, P. G. Currid, Hilda M. Davis, A. N. de Quadros, J. D. Dimock, J. C. St. G. Earl, C. L. S. Ferdinands, N. M. Goodman, *J. M. Henderson, R. S. Johnston, James Kemp, Laura H. [illegible] Niaz-ud-Din, B. C. Nicholson, *Brian [illegible] G. H. G. Southwell-Sander, J. M. Tal[illegible] Vost, and G. A. Wilson.

Part I.—O. M. Akbani, A. S. Arora, Ram Dyal, Désirée M. B. Gross, and Mary S. Stuart.

* Awarded a mark of distinction.

DIPLOMA IN PSYCHOLOGY

H. A. Fountain, Gertrude V. Gaetjens, Enid Hurst, Sophia Lauterbach, A. F. Mohun, Phyllis D. Short, Eva Sogno, and Edith B. Warr.

Part I.—Norman Crawford and Beryl E. Dunstan.

DIPLOMA IN BACTERIOLOGY

J. C. Cruickshank, Averil W. Greener, E. H. Hopkins, Thomas McClurkin, Ganapati Panja, A. E. Platt, and Helen M. Russell.

University of Liverpool

At recent examinations the following candidates were successful :—

M.B., CH.B.

First-class Honours.—J. D. Hay.

Second-class Honours.—Freda B. Bannister, G. Cornah, S. Henderson, and C. H. Stewart-Hess.

Pass degree (1924 Regulations).—D. W. Bailey, R. T. Bowes, Clara Burgess, J. M. Edwards, J. G. Hailwood, W. S. Heath, Nancy A. Holt, D. J. Hoskinson, R. A. Hughes, W. R. Hunter, H. B. N. Jennings, W. N. M. Mason, E. T. Owen, S. Papperovitch, F. Pygott, R. G. Reid, Enid Richards, Estelle E. Roskin, T. Seager, G. M. Sleggs, C. W. Warner, and C. R. Wright.

Considerable extensions to the departments of histology, physiology, pathology, and biochemistry are being carried out. The north wing of the Thompson Yates laboratories is being widened and an extra floor is being added. A portion of the Johnston laboratory will then become available for the department of biochemistry and the removal of the medical library will be avoided.

Queen's University of Belfast

At recent examinations the following candidates were successful :—

M.D.

J. H. Gillespie, T. B. H. Haslett, R. W. M. Strain, R. J. W. Withers, I. H. McCaw, J. Boyd, C. W. Kidd, F. E. B. Manning, A. R. Martin, and D. Sinton.

M.B., B.CH., B.A.O.

Second-class Honours.—S. D. Donnan, Robert Glenn, S. W. Liggett, E. W. M'Mechan, and D. C. Porter.

Pass.—D. H. Anderson, J. R. Armstrong, J. K. Armstrong, W. G. A. Bingham, J. C. Bowe, Thomas Boyd, Mary C. Chambers, Mary J. T. Darby, William Dornan, S. L. W. Erskine, J. H. Green, T. R. Haire, William Hanna, J. D. Hardy, Edwin Henderson, B. J. Henry, B. R. Henry, R. W. Hewitt, Winifred M. Jackson, A. Johnson, H. C. A. Johnston, J. H. Kyle, G. P. MacCarthy, J. K. M'Collum, C. A. M'Comiskey, R. F. M'Keown, Andrew M'Quiston, F. V. Maclaine, W. N. Martin, W. A. H. Mitchell, Gertrude E. Moffett, L. C. Montgomery, J. C. Nicholson, J. M. O'Kane, J. W. Orr, A. S. Patterson, Anne C. Robertson, S. A. Vincent, D. W. Wallace, and C. G. Warnock.

Royal College of Surgeons of England

A quarterly meeting of the council was held on July 13th. Sir Holburt Waring, the president, announced the re-election of Prof. A. H. Burgess, and the election of Sir Charles Gordon-Watson, Mr. R. C. Elmslie, Mr. L. R. Braithwaite, and Mr. H. S. Souttar, as members of the council. Sir Holburt Waring was re-elected president, and Prof. G. E. Gask and Mr. Wilfred Trotter were elected vice-presidents. Dr. Edward L. Keyes, professor of urology in the Cornell University, New York, and Dr. G. Nové-Josserand, professor of orthopædics in the University of Lyons, were elected honorary Fellows of the College.

Sir Arthur Keith has retired from the post of conservator of the museum, and Mr. R. H. Burne, the physiological curator, who has been acting conservator for the past nine months, will retire when a new conservator comes into office. Miss M. L. Tildesley was reappointed curator of the department of human osteology; Sir Frank Colyer, honorary curator of the odontological collection; Mr. C. J. S. Thompson, honorary curator of the historical collection; Mr. J. H. Thompson, Bernhard Baron scholar; and Mr. Laurence O'Shaughnessy, college research scholar.

It was reported that the special trustees of the late James Maxwell Grant Prophit had awarded a studentship for cancer research to Prof. Edward Mellanby on the recommendation of the College. The Hallett prize for anatomy and physiology was awarded to David Slome, Cape Town University.

Licences in dental surgery were granted to the following :—

Harry Ackers, G. R. Attkins, P. B. Blaiberg, N. A. Borland, C. R. Boucher, F. H. Crabb, O. P. O. Cross, J. W. Dix, William Eve, Leslie Everest, R. E. C. Farrant, Stanley Ford, C. A. Gear-Evans, F. W. Goodall, C. H. Grimshaw, Hamie Hack, O. F. Harley, A. E. Hawkins, R. G. V. Houlson, R. A. Johnson, S. W. Kemp, K. E. Lawrence, L. G. Lyle, W. E. Morton, M. Porter, H. P. Rees, J. D. Rees, E. W. R. Sattin, T. T. Schofield, M. H. J. Simpson, L. B. [illegible] piller, Elizabeth M. Stewart, F. W [illegible] E. B. Tinley, B. G. F. Turner, [illegible] Vaite, S. R. Wallis, H. C. Walsham, Theodore Weiner, H. W. Westoby, K. J. Whitten, D. M. Wilson, and C. R. Wolfendale.

Diplomas were granted jointly with the Royal College of Physicians as follows :—

D.P.H.—A. L. Banks, Kathleen F. Butterfield, Evelyn M. Davies, F. M. Day, Thomas Evans, Beryl M. Furlong, J. A. Galletly, Sibyl D. Goodwill, D. R. C. Grey, G. E. Harries, Phyllis N. Hooper, C. K. Lakshmanan, J. G. S. McQueen, Philip Morton, and J. M. Vine.

D.T.M. & H.—C. E. Bevan, B. B. Bose, [illegible] P. C [illegible] D. N. Chakravarti, A. B. Cook, Maurice Ellis, [illegible] J. A. S. Goonawardena, W. H. Greany, C. [illegible] D. J. T. Leanagé, V. S. Majmudar, H. S. P[illegible] Stickler.

D.P.M.—H. McI. Birch, C. R. Birnie, D [illegible] G. H. Davy, M. M. Deane, H. R. Ferguso[illegible] R. S. Kennedy, Annie M. McGrath, [illegible] and J. F. Wilde.

D.L.O.—Barbara M. L. Aberc[illegible] Bradbeer, K. K. Ghosh, R. W. H[illegible] Kelly, F. J. G. Lishman, A. F[illegible] Abdul Rashid.

D.O.M.S.—G. J. Ahern, K. [illegible] Collie, J. A. Corkey, Hofm[illegible] Adelaide G. Gault, M. W. [illegible]

Macdiarmid, Fawzy Messiha, J. C. Neely, P. A. V. Pillai, Campbell Shaw, and Samuel Smyth.

D.M.R.E.—C. D. Costello, R. I. Roberts, and H. E. P. Yorke.

The following professors, lecturers, and demonstrators were appointed for the ensuing year: *Hunterian Professors:* Prof. W. E. Le Gros Clark, two lectures on the evolutionary origin of the primates; Mr. C. P. G. Wakeley, one lecture on the surgery of the pineal gland; Mr. L. R. Broster, one lecture on the surgery of the adrenal: Mr. H. C. Edwards, one lecture on diverticula of the duodenum and ileum, and one lecture on diverticula of the colon and vermiform appendix; Mr. R. A. Brews, one lecture on a clinical research on the radium treatment of carcinoma of the cervix uteri; Mr. Arnold Sorsby, one lecture on retinal abiotrophy; Mr. K. H. Watkins, one lecture on the bladder function in low spinal injury; Mr. E. G. Muir, one lecture on carcinoma of the prostate; Mr. A. A. Davis, one lecture on the presacral nerve, its anatomy, physiology, pathology, and surgery; and Mr. J. M. Yoffey, one lecture on the study of lymphoid tissue. *Arris and Gale Lecturers:* Sir Thomas Dunhill, one lecture on diaphragmatic hernia; Mr. C. B. Henry, one lecture on aberrant third molars and their menace; Mr. Denis Browne, one lecture on talipes equino-varus. *Erasmus Wilson Lecturers:* Mr. R. Davies-Colley and Mr. C. E. Shattock. *Arnott Demonstrator:* Mr. C. P. G. Wakeley.

University of Sheffield

Dr. Lewis B. Winter has been appointed lecturer in physiology.

University of Edinburgh

Among those who will receive honorary degrees on the occasion of the celebration of the 350th anniversary of the foundation of the university in October are Mr. John W. Dowden and Dr. Robert Thin, presidents of the two Royal Colleges of Edinburgh, Sir Ewen Maclean, Sir Frederick Kay Menzies, and Sir Edward Sharpey-Schafer.

University of Manchester

Dr. Frank Clare Wilkinson, at present professor of dental science in the University of Melbourne, has been appointed to the chair of dental surgery and the directorship of the Dental Hospital of the University.

Prof. Wilkinson graduated as B.D.S. at Liverpool in 1912 and as M.B. in 1915. At the university he was captain of the university Rugby football team. After service in France with the Royal Army Medical Corps he returned to the pathological laboratory as a research student, having obtained the degree of M.D. in 1917. He was appointed professor of dental science at Melbourne, and principal of the Australian College of Dentistry in 1924. In 1925 he became dean of the faculty of dental science in that university, and in 1926 director of the dental research department.

Dr. Eugenia R. A. Cooper, Dr. E. Falkner Hill, Dr. Walter Schlapp, and Mr. Harry Platt have been appointed members of the board of the faculty of medicine. Miss Margaret M. Ferguson, M.B., has been appointed demonstrator in anatomy.

Harveian Society of London

On Saturday last this society made an expedition to Downe, in Kent, where members were received by Sir Buckston Browne and shown over Darwin's old home. Purchased by Sir Buckston and presented to the British Association, it is now kept as a memorial to Darwin, and is open to visitors both on Sundays and weekdays. From Down House it proved to be only a short walk, through gardens and rain, to the new research farm of the Royal College of Surgeons (see p. 204), where there were raspberries-and-cream and scientific demonstrations. Here Lieut.-Colonel E. L. Gowlland, as president, expressed the thanks of the society to Sir Buckston for his generous benefactions and presented him with a very large garden seat as a small mark of appreciation. The recipient, in returning thanks, gave a surprising account of the evolution of seats in general, and invited Sir Arthur Keith to confirm or refute it. But Sir Arthur refused to compete.

Medical Society of Individual Psychology

The annual general meeting of this society was held at the Florence Restaurant, London, on July 13th. Dr. J. C. Young was elected chairman, and Prof. W. Langdon Brown vice-chairman for the ensuing season, with Dr. F. G. Crookshank as secretary and editor, Dr. H. C. Squires as treasurer, and Dr. F. Marjorie Edwards, Dr. M. Marcus (assistant editor), Dr. Mary B. Ferguson, Dr. O. H. Woodcock, and Dr. Bevan Brown as members of committee. Dr. Crookshank said that the number of subscribing members and associates was now 114, and the history of the society showed consistent progress. The opening meeting of the next session will be held on Oct. 12th, but Dr. Adler may visit England before this and deliver an address. Communications should be made to Dr. Crookshank at 57a, Wimpole-street, W.1.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Mental Hospital.—Jun. Asst. Physician. £300.

Banbury, Oxon, Horton General Hospital.—Res. M.O. At rate of £150.

Barry U.D.C. Surgical Hospital.—H.S. At rate of £200.

Bath, Royal United Hospital.—H.P. At rate of £175.

Birmingham and Midland Eye Hospital, Church-street.—H.S. £130–£150.

Blackburn Royal Infirmary.—Res. H.P. £175. Also Fourth H.S. £150.

Bournemouth, Royal Victoria and West Hants Hospital.—H.S.'s, and Cas. O. Each at rate of £120.

Bradford City Sanatorium, Grassington.—H.P. £175.

Bradford Royal Infirmary.—Two H.S.'s. Each at rate of £135.

Bristol Royal Infirmary.—H.P.'s and H.S.'s to Special Depts. Each at rate of £60. Also Cas. O. At rate of £100.

City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.

Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.

Exeter, Royal Devon and Exeter Hospital.—H.S. At rate of £150.

Gloucester Royal Infirmary and Eye Institution.—H.S. At rate of £150.

Gravesend and North Kent Hospital.—Two H.S.'s. Each £125.

Great Yarmouth General Hospital.—H.S. £140.

Guildford, Royal Surrey County Hospital.—Visiting Anæsthetist. £150.

Hastings, Royal East Sussex Hospital.—Sen. and Jun. H.S.'s At rate of £200 and £150 respectively.

Hertford County Hospital.—H.P. At rate of £150.

Huddersfield, West Riding Mental Hospital, Storthes Hall, Kirkburton.—Asst. M.O. £350.

Lambeth Hospital, Brook-street, Kennington, S.E.—Temporary Res. Asst. M.O. At rate of £250.

Leeds University.—Lecturer in Physiology. £500.

Liverpool, Hahnemann Hospital, Hope-street.—Res. M.O. At rate of £125.

Liverpool Heart Hospital.—Asst. Physician. £200.

Liverpool Open-air Hospital for Children, Leasowe.—Jun. Res. M.O. £200.

Liverpool Royal Children's Hospital, Myrtle-street.—Res. Cas. O. £250.

Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.

Manchester, Ancoats Hospital.—H.P. and H.S. Each at rate of £100.

Newcastle-upon-Tyne Education Committee.—Asst. School M.O. £500.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Registrar to Orthopædic Dept. £100.

Nottingham General Hospital.—H.S. At rate of £150.

Plymouth City Hospital.—Res. M.O. £350.

Redhill, Surrey, Royal Earlswood Institution.—Jun. Asst. M.O. At rate of £250.

Royal College of Surgeons of England.—Two Examiners in Dental Surgery.

Ruthin Castle, North Wales.—Jun. Res. Physician. £200.

St. Andrew's Hospital, Devons-road, Bow, E.—Temporary Res. Asst. M.O. At rate of £250.

St. Helens Hospital.—Jun. H.S. £150.

St. John's Hospital, Lewisham, S.E.—Res. H.P., and H.S., and Cas.O. Each £100.

Salford, Hope Hospital, Pendleton.—Asst. Res. M.O. At rate of £200.

Salford, Infectious Diseases Hospital.—Jun. Asst. Res. M.O. £200.

Salisbury, General Infirmary.—H.P. and H.S. Each at rate of £150.

Sheffield, Jessop Hospital for Women.—H.S. At rate of £100.

Shrewsbury, Royal Salop Infirmary.—Res. H.P. At rate of £160.

Southampton Children's Hospital and Dispensary for Women.—Res. M.O. At rate of £150.

Stockport Infirmary.—H.P. £150.

Sudan Medical Service.—M.O. £E.720.

Sunderland Royal Infirmary.—H.S. and H.P. Each £140.

Swanley, Kent, Alexandra Hospital for Children with Hip Disease. Res. Asst. M.O. At rate of £200.

Warrington, County Mental Hospital, Winwick.—Asst. M.O. £500.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Res. Jun. H.S. At rate of £100.

Wigan Royal Infirmary.—H.S. £150.

Wolverhampton, Royal Hospital.—H.S. At rate of £100.

Woolwich and District War Memorial Hospital, Shooters-hill, S.E.—Res. M.O. £175.

York County Hospital.—H.S. to Eye, Ear, Nose and Throat Dept. £150.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Ashby-de-la-Zouch, (Leicester), Barnoldswick (York, West Riding), Newquay, No. 2 (Cornwall), and at Thurso (Caithness).

MAN AND METALS

IT is only by reading such a book as Sollas's "Ancient Hunters" that we in this twentieth century can form even the vaguest picture of what life would be without metals, although those who have passed middle age can remember a time when aluminium, nickel, chromium, manganese, cobalt, tungsten, and cadmium at least were not used in industry. The more common precious metals, gold and silver, were known about 3000 years before the Christian era. Being found native, their beauty, rarity, and permanence gave them value, which was enhanced by the ease with which they could be fashioned. The discovery of the base metals which must be won from their ores by smelting was no doubt accidental, and F. E. Studt, who found, in the Belgian Congo, beads of melted copper in the camp fires of natives who had used lumps of ore as hearth stones, deduces therefrom that "We are warranted therefore in concluding that in a copper region such an accident could happen sufficiently often to give primitive man the hint required to connect the idea of heat with the idea of fusibility." From such beginnings the great metal industry has sprung and those who would know more of the present position of metals with regard to human activity, and of the steps leading to that position, should read the exposition given by Sir Harold Hartley, professor of metallurgy in the Royal School of Mines, recently delivered as the first research and development lecture of the British Science Guild (from the offices of the Guild, 6, John-street, London, W.2., 1*s.*).

THE COLONATOR.—Although colonic therapy may be held to have an established place amongst modern therapeutic measures, its value has in the past been limited by the fact that it is not always available in general practice. An appliance named the Colonator has recently been put on the market by the Colonator Co., 197, Bath-street, Glasgow, W.2, which should help towards removing this difficulty. It consists essentially in a square rubber bag, of the hot-water bottle type, in which the irrigating solution is contained, and which is connected with the anal nozzle by rubber tubing, the flow being controlled by means of two ebonite taps. An assortment of minor fitments, including a vaginal nozzle and a tube of lubricant, is also provided, the complete apparatus being contained in a neat black attaché case which is readily portable.

"A VISIT TO THE BEMAX FACTORY."—Prof. J. C. Drummond writes: "May I be permitted to correct the report which appeared in your issue of July 8th of the remarks which I made on the occasion of the visit of the members of the council of the Metropolitan Branch of the Society of Medical Officers of Health to the factory where Bemax is manufactured. I stated that through the kindness of H.M. Prison Commissioners I had been enabled to obtain very valuable information concerning diets of the prisoners in the eighteenth and early nineteenth century. This information enabled me to form an opinion regarding the diet of the labouring classes in those times, and convinced me that the consumption of a diet consisting very largely of whole-meal bread was far more satisfactory than modern diets with their high content of white flour. The introduction of processes for removing the germ from bread in the second half of last century was, in my opinion, responsible for a steady increase in the incidence of disorders arising from malnutrition. I did not state, as was reported, that there had been an increased incidence of gastro-intestinal diseases in H.M. prisons since the middle of last century."

THE GRENFELL CALENDAR.—We have received an early copy of the Grenfell Calendar for 1934, which is larger and more elaborate than last year; the number of pages has been increased from 12 to 52. The frontispiece is an "oil-facsim." portrait of Sir Wilfred Grenfell from a paintin by Bernard Gribble. On each of the pages of th calendar is a reproduction of a photograph o conditions of life or scenery in Labrador, to whic crisp quotations from Sir Wilfred Grenfell's writings including many from his recent book "Forty Year for Labrador," often provide an apposite commentar The calendar is being sold at 3*s.* 6*d.* by the Grenfel Association of Great Britain and Ireland (82, Victoria street, London, S.W.1), to promote work amon the English-speaking fishermen of Labrador an Newfoundland.

THE MEDICAL DIRECTORY.—Messrs. J. and A Churchill (40, Gloucester-place, London, W.1) write "To maintain the accuracy of our annual volum we rely upon the return of our schedule whic has been posted to each member of the medica profession. Should the schedule have been lost o mislaid, we will gladly forward a duplicate upo request. The full names of the doctor should b sent for identification."

BONES.—An executor asks: "I have the dispositio of certain human bones. I can, of course, bury then but would it be of service to any medical student t despatch them to him? The collection comprise a large part of the human skeleton."

Appointments

DRUMMOND, J. S., M.B., Ch.B. Glasg., D.P.H., has bee appointed Assistant Medical Officer of Health for Bury.

ECKHOFF, N. L., M.S. Lond., F.R.C.S. Eng., Assistant Surge to Guy's Hospital.

EVANS, HORACE, M.D., M.R.C.P. Lond., Assistant Director the Medical Unit, London Hospital.

ORR, J. L., M.B., Ch.B. Glasg., Asst. Surgeon, Royal Canc Hospital, Glasgow.

London County Council.—The following appointments ha been made to general and special hospitals. A.M.O. and A.M.O. (II) indicate assistant medical officers Grades I and II respectively.

- PAGE, E. S., M.B. Camb., F.R.C.S. Eng., Senior A.M.O. (I St. Mary Abbots.
- EALING, MILDRED I., M.D. Leeds, A.M.O. (I), Hackney.
- HODGKISS, F., M.B. N.Z., A.M.O. (I), New End.
- MACGREGOR, MURDOCH, M.B. Glasg., D.L.O., A.M.O. (Park.

Certifying Surgeons under the Factory and Workshop Act FRIDJHON, M. H., M.B., B.Ch. Dub. (Kingston, Surrey and HUTCHISON, J. S., M.B., Ch.B. Aberd. (Staveley, Derb

Births, Marriages, and Deaths

BIRTHS

MILL.—On July 11th, at Welbeck-street, W., the wife of W. Mill, M.S., F.R.C.S., of a son.

RICE.—On July 9th, at Thorpe-road, Norwich, the wife of Raymond Rice—of a son.

DEATHS

ABRAM.—On July 13th, at Stanley-road, Hoylake, Emerit Professor John Hill Abram, M.D., F.R.C.P., late Honora Physician, Royal Infirmary.

DOWN.—On July 11th, at Sylvan-avenue, Exeter, Arthur Re Down, L.R.C.P., aged 69.

GIBBS.—On July 7th, at St. Mawes, Alfred Napier Godby Gib M.R.C.S., L.R.C.P. Lond., Hon. Consulting Surgeon to Bristol Eye Hospital.

MURTZ.—On July 11th, Anton Peter Murtz, M.B., L.S.A., l of London, at 7, San Remo, Hove, Sussex.

RICHARDS.—On July 13th, at a nursing home at Chiswi William Hunter Richards, J.P., M.S., F.R.C.S., aged 63.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices Births, Marriages, and Deaths.

THE ROYAL MASONIC HOSPITAL.—When the Ki last week opened the new Freemasons' Hospital a Nursing Home at Ravenscourt Park, Hammersmith, acceded "with great pleasure" to the request that t institution should in future be known as "The Ro Masonic Hospital."

ADDRESSES AND ORIGINAL ARTICLES

THE WORK OF THE B.M.A. IN IRELAND*

By T. Gillman Moorhead, M.R.I.A., M.D. Dub.,
P.R.C.P. Irel.
REGIUS PROFESSOR OF PHYSIC, TRINITY COLLEGE, DUBLIN

[Prof. Moorhead commenced his presidential address by disclaiming any intention to survey the history of the British Medical Association in Ireland in detail, but would recall to the audience the importance of the first meeting in Dublin in 1867. He said :—]

The president was the great William Stokes, and many other distinguished men of science attended. The great importance of this meeting was emphasised in an article which appeared in the *Journal* 20 years subsequently. The editor says :—

> "The brilliant eloquence of Simpson and Smith, the weighty wisdom of Stokes, the gentle persuasiveness of Acland, the large statesmanship of Rumsey, the high-minded counsels of Stewart, gave to the proceedings of the Association a weight and force which have never been surpassed. But from that date and from that year the Association entered upon that new career of vigorous prosperity in which it has never faltered, and which has brought it to its present stage of phenomenal success. For the first time great development was given to its scientific aspects. It multiplied its sections, it created new opportunities of scientific activity, and it invited to its aid the youngest and most earnest workers in all the departments of medical science. That impulse was never lost."

This is high but justifiable praise. The meeting was undoubtedly an important one, in the first place because it was the symbol of a union of hearts between members of the medical profession in Great Britain and Ireland, a union which, in spite of political changes and developments, has never since been broken and remains steadfast to-day. But it was important in many other ways. It may be stated definitely that this was the first meeting at which the scientific business occupied a foremost place. At former meetings there were scientific discussions, but the main work at those meetings was of a medico-political nature. Now for the first time the scientific business was divided into sections, four in number—medicine, surgery, physiology, and obstetrics. Since then increasing specialisation has added more and more sections, and the end is not yet. Some may feel that the segregation of specialists in isolated groups is a mistake, but few will doubt that it is by specialisation that advances in real knowledge are for the most part attained. The Association made a forward step when it recognised this fact in 1867.

The Stimulus of the B.M.A. to Public Health Services

Further, the meeting gave an enormous stimulus to public health services, services which, indeed, at that time were almost non-existent. Stokes, in his eloquent inaugural address, prophesied an immediate development of State medicine, a development which is still proceeding, but which years ago, largely as a result of this meeting, attained a magnitude far greater than was ever dreamt of by Stokes. Rumsey also, a Cheltenham doctor, already well known for his advocacy of preventive medicine, made a special plea for the establishment of sanitary medical officers and for the appointment of medical men to carry out many other public duties, such as are now accepted among the commonplace and routine services established in every civilised community.

This meeting, in fact, may be regarded as having initiated the great change which has taken place since that date in the functions of the doctor. In 1867 the thoughts of the doctor were not, as Bacon puts it, "raised above common cures," but from henceforward they were to be turned to the subject of prolonging and renewing the life of man. The general practitioner, "the salt of the earth," as Barrie called him, is still the backbone of the profession. He is the true and valued friend of many a household. He is the standard by which the entire profession is measured, for to the vast majority of the public he represents all that is connoted by the name doctor. But in 1867 he was isolated, and his duties consisted solely in ministering to the relief of individual patients. Since then a revolution has taken place. No longer is he isolated but, as a member of a great coöperative system, he performs a new and more effective function. The public hardly realises how great has been the change, and the extent to which the doctor now enters into the general life of the community. There has developed a vast and complex service devoted to curative and preventive medicine, and to the preservation of the health of the community at large. In that service the general practitioner has many duties and many responsibilities undreamt of 60 years ago. A gratifying result of this system and of the way in which the general practitioner performs his duties is an all-round improvement in health, an increase in the expectation of life, and a greater enjoyment of life. For all this, as already stated, the Dublin meeting of 1867 may, to a large extent, be thanked, for it focused the attention of the profession and of the public upon urgent and vital needs. An early and almost immediate result was the establishment in the year 1870 of the diploma of State medicine in Dublin University. This was the first diploma of its kind in the British Commonwealth. As one looks to the future, one foresees a still greater extension of public medicine, and I for one look forward to a time when the simple laws of health will be more widely taught among and known by even the poorest inhabitants of our country, and when the State will compel everyone to obey those health laws.

Its Attitude Towards Medical Education

In addition to his advocacy of State medicine, Stokes in his address pleaded strongly for the scientific investigation of the action of drugs and other therapeutic measures, for apparently quackery was as rampant then as it is to-day. His plea is as necessary now as it was nearly 70 years ago. He insisted that if quackery in the profession were to be avoided it was essential that everyone entering the profession should receive a wide, liberal education. One is happy to think that such an education is now our common property, yet I venture to think that a greater grounding in inductive logic and in the laws of evidence would not be amiss. But the elimination of quackery ultimately depends on the education of the public. A country is said to get the Government that it deserves. On the whole, this country seems to me to get better medical services than it deserves, but it would get better still if it knew how to appreciate those services at their true value, and if it was better trained in distinguishing the false from the true. I would like to teach elementary logic in the higher classes of every school in the country, and in the same classes to give short courses in elementary physiology and in hygiene. Such a training might help to remove the credulity which still believes in magic, and which enables the charlatan to flourish.

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* Presidential address at the 101st Annual Meeting of the British Medical Association, Dublin, July 25th.

[Prof. Moorhead pointed out, quoting the opinions of several famous presidents of the Royal College of Physicians of Ireland, and of Sir Andrew Clark, that in medical education the fundamental idea should be to give the student a scientific outlook and a desire to learn. He continued :—]

Medicine should be taught as a whole. There has been too great a tendency of late to teach subjects in watertight compartments. My own view is that the General Medical Council is a sinner in this respect. It is not now possible to digress into a disquisition on the medical curriculum, but it will be agreed that a thorough knowledge of the early scientific subjects forms the basis of success as a medical practitioner. Realising, however, that the mental capacity of the average human being is limited, I agree with those who urge that, as far as possible, these subjects should be taught from a vocational standpoint, and with a view to illustrating broad scientific principles. An accomplished teacher will know what to eliminate, and, while showing the direct bearing of his subject on the ultimate lifework of the student, should be able at the same time to indicate the paths of research and of inquiry which lie open to those who are eager and to those who are capable of delving deeper into the subject. As regards clinical medicine, I somewhat deplore the recommendations of the General Medical Council that special courses of instruction should be given on so many specialties. At any rate, these special courses should have their corrective in the out-patient department, where patients not already labelled will be seen by the student, and where the habits of rapid diagnosis and of decision, in short of resource, may be acquired. In the out-patient department the student will see patients in exactly the same way as he will see them after qualification, whereas the systematic study of, for example, tuberculosis or venereal disease in hospitals entirely devoted to the treatment of such cases presents the patient from quite a different angle. Specialised courses are all-important as a means of post-graduate instruction when a student has already acquired a general grasp of the principles of his profession. I have never wavered from my view that all that we can do in the course of the medical curriculum is to instil a broad knowledge of principles. If we succeed in doing that, a student placed on his own responsibility is capable of continuing his education and of acquiring all the details which he requires with extraordinary rapidity. If he does not acquire the principles, he will never throughout his life attain to a position higher than that of a qualified quack, at the mercy of every wind that blows, and the servant of the vendors of those many proprietary preparations whose alluring advertisements assault our breakfast table. As I read through the reports of that first Dublin meeting I realise how fully those who were then gathered together had grasped the true meaning of education, and how great an impetus they gave to the realisation of their wishes.

The Salients of the Five Irish Meetings

[Prof. Moorhead outlined the progress in numbers and influence which had taken place when the Association for a second time met in Ireland at Cork under the presidency of Dr. Daniel O'Connor, professor of medicine in Queen's College, Cork, and then 80 years of age. This was the meeting at which Sir William Savory contended that Listerism was unnecessary, an attitude which the orator explained as "revealing the germs of the aseptic system." The proceedings at the next meeting in Ireland took place in Belfast in 1884, when the same developments in numbers and scope were registered, and an outstanding feature of the meeting was the inauguration of a special section of pharmacology and therapeutics presided over by T. J. Maclagan, famous for his connexion with the use of salicylates in rheumatism. Of the fourth meeting in Ireland, which was held in Dublin in 1887, 20 years after the first meeting, Prof. Moorhead said that the most remarkable occurrence was the address delivered by the Rev. Samuel Haughton, M.D. Dubl., on the relation between the Dublin slums and the high death-rate of the city. Haughton, he said, advised the construction of a main drainage scheme for Dublin, and drew a vivid picture of the then unsanitary state of the city and outlying suburbs. His words began to have immediate result, although it was only in 1931, 50 years later, that the slum problem could be tackled on comprehensive lines. Of the fifth meeting, held in 1909 in Belfast, Prof. Moorhead said that a memorable connexion with that gathering was the holding of the business in the Queen's College which had within the year attained to the status of an independent university. He continued :—]

The Poor-law Medical Service in Ireland

In the period of 42 years covered by these five meetings the science and art of medicine passed from mediaevalism into modernism. The British Medical Association played no unworthy part in this evolution, and Ireland can claim that largely as a result of those meetings it has been enabled to influence the policy and structure of this Association, and to contribute in no small measure to medical progress.

But the activities of the Association so far as Ireland is concerned were not confined to the holding of annual meetings. One of the most important chapters of its work is that which deals with its campaign in relation to the poor-law medical service and workhouse system. In order that the present position of the public medical services may be understood, and in order that the campaign may be seen in its true perspective, it is necessary briefly to refer to the establishment of medical relief agencies in Ireland. Prior to the year 1765 practically no provision existed in rural Ireland for the medical relief of the sick poor. In that year the Irish Parliament passed an Act which granted permission to the grand juries in each county to establish a county infirmary, and under this Act within the next 50 years infirmaries and fever hospitals were established in almost every county. These were an undoubted boon, and many of them are in existence to-day; but they left the main problem of medical attendance on the poor quite untouched, and as time went on it became apparent that further provision must be made for the aged and decrepit, and for the destitute sick. In 1838 the Poor-law Act was passed. This was modelled on the English Act of 1834, by which the system of workhouse relief was established. Under this Act nearly 160 workhouses were built, to each of which was attached an infirmary and a small fever hospital. Into the workhouses the poor and decrepit were admitted in large numbers, in spite of the unpopularity of the institutions, but the Act made no provision for attendance on the sick poor in their own homes, or for the treatment of minor ailments.

Experience soon showed that the workhouses were thoroughly unsatisfactory. Young and old, unemployed and unemployable, blind, and lunatics were often herded together with the most demoralising results. Public opinion was slowly aroused, and in pursuance of its policy of endeavouring to promote the physical welfare and health of the nation, the British Medical Association decided, in 1895, to appoint a special commissioner to inquire into the system. Miss C. J. Wood, formerly lady superintendent of the Hospital for Sick-Children, Great Ormond-street, was sent over, and after visiting several of the institutions made a detailed report. The medical officers attached to these institutions had no special grievance as far as salary or terms of appointment were concerned, but the institutions themselves left much to be desired. They were almost without exception prison-like structures, gaunt outside and dreary within, ill-furnished, and badly equipped as regards both comfort and even sanitation. At the time of Miss Wood's report the supply of trained nurses was totally inadequate—most of the nursing being done by the inmates themselves—and no provision whatever existed for night attendance.

In spite of unpopularity, however, the workhouse system continued to exist until the troubled times which preceded the signing of the Treaty of 1921. At the time when the Treaty was signed about 130 of these structures existed in the Saorstat, although many of them were no longer in use. Some of them had been burned, others had been occupied by troops. From the first, the provisional Local Government Board of Dáil Eireann was determined on their complete abolition and on the wiping away of the system for which they stood. There is little doubt that Miss Wood's report was largely responsible for bringing home to thinking people in Ireland in the year 1895 the evils of the unions, and that the action of the British Medical Association in sending her over was a factor in their final abolition. It will be pointed out later that the place of these unions has now been taken by a well-organised system of county homes and county hospitals, and by a system of outdoor relief.

The B.M.A. and the Dispensary Medical Officers

[Prof. Moorhead then described the campaign on behalf of the dispensary medical officers undertaken by the British Medical Association some 40 years ago. The inadequate pay of the officers had been the subject of comment for ten years previously, but in 1891 Ernest Hart took a personal share in bringing the situation before the Government, and for some years the columns of the *British Medical Journal* were open to the question. He continued :—]

In 1903 the Association determined to make a further effort on a big scale. In that year Surgeon-General Evatt, well known for his efforts on behalf of the Army Medical Services, retired from active work, and at the request of the British Medical Association he visited Ireland with the object of examining into, and reporting on, the conditions of the poor-law medical service. In the autumn of that year he issued an elaborate report in which he reviewed the working of the poor-law system as a whole. He endorsed the numerous complaints that had been made, and urged the medical officers to take bolder steps to remedy their grievances. This report produced a profound impression, and greatly strengthened the hands of those who were trying to influence the officials of the Local Government Board. A campaign of boycott was now inaugurated, under which certain dispensary districts when they fell vacant were left without a doctor—other than a locum tenent—owing to the pressure brought by the British Medical Association and the Irish Medical Association upon all of their members to refuse to apply for appointments which did not come up to a certain salary. A further step was the appointment in 1905 of an Irish committee of the British Medical Association, one of whose special functions henceforward was to inquire into and, as far as possible, deal with complaints made by dispensary doctors. This was followed in 1914 by the establishment of an Irish office with a full-time secretary. This office has been invaluable in looking after the interests of poor-law medical officers, and indeed all medical interests in the country. Through its efforts, and aided by the recommendations of a Viceregal Commission held in 1906, grievances have been removed one by one.

By the action of the Local Government Board the scales of salaries have been gradually raised, and a system of promotion on a moderate scale has been introduced. It was not, however, until the year 1919 that the principle of compulsory superannuation and of pensioning was made law (Local Government (Ireland) Act, 1919). Finally, by the Local Authorities (Officers and Employees) Act of 1926, a change of great importance in the method of election of dispensary doctors was brought about. Under this Act the appointment of dispensary medical officers was taken out of the hands of the county authorities and put in the hands of special commissioners. The qualifications of a candidate are now carefully considered by experts, and there is no doubt that under this scheme favouritism and jobbery have been done away with, and that, at any rate until quite recently, the dispensary medical officers have been appointed on an equitable basis. As already stated, there has never been any doubt as to the value of the system to those served. As far as the medical men are concerned I can best summarise the advance that has been made by quoting from an article which appeared in the *Supplement* to the *Medical Press and Circular* in August, 1931 :—

> "Dispensary doctors of the present day hardly realise what a reform has taken place in regard to their conditions of employment during the present century. It is only a few years since salaries were stationary, and retiring allowances were a matter of grace. These days are gone, and a young man now entering the public medical service in the Irish Free State can look forward to a life of useful and not uninteresting work, and not unfair remuneration. The younger men hardly recognise what a debt they owe to their immediate predecessors, working through the medium of the medical associations."

The National Health Insurance Act

In connexion with the National Insurance Act Irish doctors were active from the very moment that the text of the Bill was issued. Almost immediately the Irish committee of the British Medical Association took into consideration the proposals with regard to the application of the scheme to Ireland. The Irish Medical Association at the same time showed much energy, and was mainly responsible for the summoning of a mass meeting which was held in the Antient Concert Room, Dublin, on June 30th, 1911. At this meeting it was decided :—

> "That the Committee of Council of the Irish Medical Association and the Irish Committee of the British Medical Association be appointed an executive committee to look after the interests of the medical profession in Ireland in connexion with the National Insurance Bill."

From an early date it became apparent that the interests of the Irish profession and those of the

English profession were widely dissimilar, inasmuch as the Irish Parliamentary party recommended that Ireland should be excluded from medical benefit. This recommendation was adopted. Up to the present Saorstat Eireann has not included medical benefits, and only in 1931 were these benefits extended to Northern Ireland. In spite of this exclusion, the profession in Ireland stood shoulder to shoulder with the profession in England in the fight of the latter for fair conditions. At the very first meeting in Dublin it was decided to circularise Irish medical men urging them not to undertake medical duties in connexion with the Act in England until the British Medical Association was satisfied with the terms offered. Many Irish doctors also contributed at this time to the guarantee fund which was raised for the purpose of indemnifying those who might suffer pecuniary loss in their determination not to work the Bill. The victory which the Association won in England is now a matter of history. In Ireland the main struggle was to secure sufficient remuneration for sickness certification. This struggle lasted for some years, and was finally settled by the good offices of Dr. Addison, Dr. Macdonald, chairman of the Council, and Dr. Cox, secretary of the British Medical Association, who arranged an interview between Mr. Roberts, M.P., and representatives of the Irish medical profession in 1915. It was then agreed that the annual sum of £90,000 should be paid for certification in Ireland, and that the right of certification under the Act should be granted to all medical men in the country with an arranged capitation payment. After that date for many years certification was carried on under conditions satisfactory to all concerned.

Other Activities of the Association in Ireland

The other activities of the Association in Ireland are too numerous to be referred to in detail; indeed only a few of them can even be mentioned. But it may be stated that there has been hardly a single matter affecting the interests and welfare of the profession, and scarcely a matter of importance in connexion with public health, that has not received from time to time the most careful consideration from the Irish branches and divisions. Since the appointment of the Irish committee in 1905 the work of the Association has been systematised, while the establishment of an Irish office, with a full-time secretary, has added enormously to the influence which the Association has been able to wield.

As early as 1888 the Association showed its interest in medical teaching by advising the appointment of professors of pathology in all the Irish medical schools. Ten years later it showed a similar interest in bacteriology, and pressed for the establishment of a central bacteriological institute. In 1890 it joined with the Irish Medical Schools' and Graduates' Association in an emphatic protest against the exclusion of the holders of Irish degrees and diplomas from hospital appointments in England.

In the campaign on behalf of the personnel of the Army Medical Services the Irish members took a leading part, and there is little doubt that the influence they were able to bring to bear on newly qualified Irish doctors in restraining them from entering the Services until satisfactory conditions were conceded did much to bring about the necessary reforms. During the war an Irish emergency committee was organised, the main purpose of which was to obtain medical recruits for the army, a work in which it proved most successful. From time to time representations were made to suitable quarters on such matters as the medical inspection of schoolchildren, the registration of midwives, the payment of fees to medical witnesses, the establishment of grades of salaries for prison doctors, the medical inspection of dairies, and many others. Lastly, as will be pointed out immediately, the Irish Medical Committee in 1919 made representations regarding the establishment of a Ministry of Health for Ireland. These representations were the first step towards that great development of the public health services which was initiated after the signing of the Treaty of 1921.

But this catalogue grows wearisome, and takes no cognisance of those intangible benefits which flow from that mutual goodwill and friendliness which professional coöperation induces. I have failed in my task if my hearers do not realise that the contributions of each country to the other in their combined work for the conquest of disease have been spiritual as well as material. The medical profession of the entire world is marching forward, inspired with a love of service and aiming at such perfection of our science and of our art as will in the end wipe away all sickness. In that onward march the professions of these two islands, mutually aiding one another, have taken a foremost and sometimes a leading place.

The Irish Medical Association and Affiliation

In most of its activities the British Medical Association has worked in conjunction with the Irish Medical Association. In June of this year the Irish Medical Association numbered just under 400, and the members of the British Medical Association resident in Ireland were nearly 11,000. Again and again it has been felt that in a small country like Ireland a single representative association would have greater weight in promoting the interests of the profession than two associations which, though friendly to one another, are to some extent competitive, and at any rate overlap in their activities. Various attempts at amalgamation have been made. The last of these was in 1919, when an influential committee was appointed to explore the question. After some months this committee reported in favour of amalgamation, and in favour of the formation of a single association affiliated to the British Medical Association. The amalgamation was, however, intended to apply to the whole of Ireland, but before the scheme could be discussed in detail political partition in Ireland had been brought about. As a result the matter was allowed to drop, but it appears to me that the time is now ripe for a reopening of the question.

From a scientific point of view the interests of doctors are probably identical everywhere, but conditions of service vary in accordance with the custom of the people and in accordance with legislative enactments. Since the passage of the Insurance Act the conditions of practice in England and in Ireland have been dissimilar. Of necessity much of the work of the Association deals with insurance problems which in no way interest or affect the Irish doctor. In consequence, many of the Irish profession are slow to join an Association whose work from their point of view is so largely devoted to matters with which they have no concern. An affiliation on broad lines would, I feel certain, prove of benefit to the Association as a whole, and to the Irish profession. I feel that such an Association would be widely supported, and would be genuinely representative. It may be added that the establishment in 1926 of a separate *Medical Register* for the Irish Free State has to some extent already organised our entire medical profession.

Public Health Services in the Irish Free State

I will conclude this paper by a short reference to the recent development of public health services in the Saorstat, a development which had its beginning in representations made to the Government by the Irish Medical Committee. Since 1887, the date of the last Dublin meeting, our public health administration has, as in other European countries, developed into a regular network of associated and well-coördinated medical services. The main advance as far as Ireland is concerned has been in the last ten years. Dr. Stephenson, late chief medical adviser, Department of Local Government and Public Health, Dublin, in a recent pamphlet, says: "Public health reform has advanced rapidly in the Free State, perhaps more so than in any other country, yet the health schemes are laid on solid foundations, capable of expansion on definite and systematic lines." For this advance the forward-looking men in the Department of Local Government and Public Health are mainly responsible, but the primary stimulus is due to our Irish secretary. In 1919 Dr. Hennessy read an important paper before the Section of State Medicine of the Royal Academy of Medicine in Ireland. This paper was entitled "Ireland and a Ministry of Health," and foreshadowed a comprehensive scheme of public health services with central control.

At that date public health services occupied much attention following the establishment of a Ministry of Health in Great Britain, and in consequence the chief secretary was readily induced to receive a deputation of medical men, who urged the necessity of establishing a Ministry of Health suitably adapted to Irish needs. The Government, however, could not at that time be induced to establish such a Ministry. As an alternative it set up a public health council. This council issued an important report in 1920, in which it recommended :—

(*a*) The coördination as far as possible of the general central control of all the services relating to, or ancillary to, health, and the establishment of a Ministry of Health.

(*b*) The reorganisation of local health administration with a view to placing it as far as possible on a county basis.

(*c*) Reform of the poor-law medical services.

This report appeared at a time when Ireland was in the throes of a political struggle, and when medical and other public services were greatly disorganised. In consequence, no governmental action followed its issue, and before long the Council ceased to function, and was finally dissolved by the Local Government Act of 1925.

Nevertheless, this report formed the basis for the future development of the Irish services. After the Treaty was signed, and the period of civil strife which followed, the executive council of Saorstat Eireann adopted many of its recommendations. By Acts passed in 1924 and 1925 all the medical services were concentrated in one department of the Local Government Board, with the result that enormous simplification and coördination of public health work has been brought about. As already stated, the workhouse system was swept away in the early revolutionary years. In its place there has now been established in each county in Ireland a well-equipped county hospital with a full-time medical officer and suitable assistants, and one or more county homes. The homes house those aged and infirm who, without friends or relatives to support them, require the succour of the State. In each county hospital the main surgical work of the county is carried out. When these hospitals were first established it was feared that the city hospitals would lose many country cases and that their teaching capacity would in consequence be impaired. Time has shown, however, that this fear was groundless. The county hospitals indeed deal with the great bulk of what I may call routine surgical work, but there is still an abundant flow of difficult cases from all parts of the country to the teaching institutions.

In each country a full-time medical officer of health has been appointed, who is responsible for all matters of public health in his county. To him the dispensary medical officers report regarding the health of their district. Specialist services have not been neglected. Ophthalmic surgeons visit the main towns according to a definite plan. School inspection work and schemes for child welfare have also been developed, while in each county schemes for the treatment of venereal disease and for tuberculosis, with domiciliary visitation, have been adopted.

It is unnecessary to go into further details, but it is clear that, as far as Ireland is concerned, a great step forward has been taken in the last ten years in connexion with public health. Only a person resident in the country can realise how great the advance has been, and how great an improvement the new order is compared with the old. The Department of Local Government and Public Health, in pursuing its policy, has wisely realised that education of the public must precede reform, and so thorough have been its methods of instruction that practically every forward step has been made with the concurrence and goodwill of the county councils, who are responsible, and of the people generally.

Ireland has still far to go, but it is advancing resolutely. Before long it will be in the very forefront of civilised races so far as the care of its people is concerned. In its future struggle this meeting of the British Medical Association will prove a stimulus and an aid. It comes at the beginning of an epoch in our development. Perfection is not attainable, for as the goal is approached new problems ever arise, but Ireland is travelling hopefully, and to do that is better than to arrive. Its desire is not merely for the physical needs of its people, but for their spiritual development.

> "I looked: aside the dust cloud rolled,
> The Warrior seemed the Builder too,
> Upspringing from the ruined Old,
> I saw the New!"

HOSPITAL EXTENSIONS.—A children's ward has been added, at a cost of £1200, raised by public subscription, to Selby War Memorial Hospital, in memory of the late Dr. George D. Todd, who practised in Selby for half a century and was greatly interested in the hospital. The ward was opened by his widow, who also unveiled a memorial tablet. It forms part of a new wing, the cost of which has been defrayed by the Mellanby Trust.—Lieut.-Colonel C. F. Milward, chairman of the Worcestershire county council, has opened a new wing of Evesham public assistance institution, comprising four wards with 72 beds placed around a turfed and shaded quadrangle. The infirmary will now serve the whole of South Worcestershire.—The Parkhurst (Isle of Wight) public assistance institution has been enlarged by the addition of a maternity pavilion which contains nine beds and the usual appurtenances, and has cost £2500.

DERMAL STRAIN OF VACCINIA VIRUS GROWN ON THE CHORIO-ALLANTOIC MEMBRANE OF CHICK EMBRYOS

A POSSIBLE LARGE SCALE PRODUCTION OF A BACTERIA-FREE VIRUS

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LIEUT.-COLONEL I.M.S. (RET.)
AND
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(*From the Government Lymph Establishment*)

A. M. Woodruff and E. W. Goodpasture[1] published a paper on the Susceptibility of the Chorio-allantoic Membrane of Chick Embryos to Infection with Fowl-pox Virus and later, in collaboration with G. J. Buddingh,[2 3] described a method of cultivating vaccinia virus in the same membrane. Using this method with certain simplications of technique we have been able to infect with vaccinia virus a large proportion of suitable eggs. The work continues, this being a preliminary note.

The authors mentioned have begun usually by infecting the chorio-allantoic membrane with a strain of virus that may be called neuro-testicular (Levaditi's neuro-vaccine passed through the testis of a rabbit). In most of the methods used for the cultivation of vaccinia virus a pure dermal strain has not been used as an initial inoculum on account of the difficulty of ensuring freedom from contaminating bacteria, so that neuro-vaccines, testicular strains, or dermal strains passed through rabbits' testes are most commonly used. We do not discuss whether the use of such strains is advisable; we have been fortunate in being able to initiate our cultivations with purely dermal strains, and it will be acknowledged that such are preferable in every way.

Ledingham and McClean[4] have reported that small quantities of a dermal strain can be collected entirely free from bacteria. The method which we have adopted is as follows. We have commenced with our own glycerinated vaccine lymph derived from the calf, which experience has shown to give satisfactory results: with such lymph diluted 1 in 20 with physiological saline we have injected rabbits intradermally and obtained good papules from which the initial inoculum is collected on the fourth day. The rabbit is killed and, with aseptic precautions, the skin is incised over cauterised lines well away from the papules so that it may be reflected back over a wooden support shaped like a darning mushroom: after the connective tissue has been dissected away slightly the papules are incised without entire penetration of the skin and then, with some scraping, small amounts of exudative material are collected which, if proper precautions are taken, are found to be sterile; this material is now diluted to a very small degree with 0·85 per cent. sodium chloride solution (about two to three parts of the exudate to one part of saline solution) and then pounded very gently with a glass rod. The clearish supernantant fluid is used as an inoculum and on one occasion was titred out intradermally on another rabbit and gave a small papule in 1 in 1000 dilution. It is better, we think, if some small flocculi of tissue material are present in it. Several eggs can be inoculated with the papular exudate of one rabbit, though we have found that the resulting infection may be slight if it is diluted too much. We are inclined to think that the first passage on the chick membrane is more likely to result in slight infections with a tendency to the formation of isolated papules than later infections by passage from one chick membrane to another. We have carried out a series of infections in this manner up to the fourth generation without any indication that the virus is losing its potency as a result of continued growth on the chorio-allantoic membrane.

As our initial inoculum differs from that employed by Woodruff, Goodpasture, and Buddingh, and our present technique is simpler, perhaps a short description is advisable both of the technique and of the naked-eye appearances of the resulting lesions.

TECHNIQUE

Fertile eggs after 10 to 11 days' incubation have been chosen. The air sac is marked off with a pencil and an area chosen and marked over what appears to be, by transmitted light, the membrane of the embryo in such a position as to be well within the shadowed portion but yet away from the darkest area, which indicates probably the position of the head. The egg is now placed on a stand so that the air sac end is submerged in a water bath at 38° C. to 40° C. as practised by E. R. Clark.[5] The shell over the chosen area is well rubbed with alcohol and allowed to dry. Disinfection of the shell with tincture of iodine can also be carried out with safety; we have also on some occasions flamed the small selected area, but we consider this may be dangerous to the life of the embryo. All instruments are dipped in alcohol and flamed. With the sharp point of scissors or scalpel a small hole is drilled in the shell, avoiding, if possible, damage to the shell membrane; very often however this membrane is perforated and the chorion exposed and even damaged, as evidenced by a slight trace of blood, but these events do not seem to prevent the embryo surviving. If the shell membrane is not perforated during this procedure it is incised, but no attempt is made to damage the chorion by pricking in the manner advised by Woodruff and Goodpasture, for we found that death of the embryo may be caused thereby. The inoculum is drawn up into a sterile fine capillary pipette and a column of about 1 to 1·5 inches injected below the shell membrane obliquely on to the surface of the chorio-allantoic membrane, when often it may be noticed that the movements of the embryo actually suck in any of the inoculum that may be left at the margin of the hole. The shell opening is then closed with melted hard paraffin—sterile and not too hot, and near to the point of solidification. We have found that this method of closing the aperture is most satisfactory, although we have had success with mica discs sealed down with a mixture of resin and beeswax, and with collodion discs. The eggs are then dried, marked with identification numbers and dates, and returned to the incubator, and thereafter are turned morning and evening and allowed to cool off every day for 15 minutes. Incubation is continued for four days, after which the eggs are opened in the following manner: the upper third to half of the egg towards the more pointed end is dipped in alcohol and flamed and the shell opened aseptically in that area; the chorio-allantoic membrane is then incised with scissors and the contents within that membrane may then drop out or be drawn out with forceps fairly easily, leaving as a rule the chorio-allantoic membrane attached within the shell, from which it can be separated with ease. This procedure, if carried out aseptically, results in a growth of virus free from contaminating organisms, as repeated sterility tests have shown; in one case, however, in some undetermined way, contamination did result, and this incident indicates that at every step the most rigid precautions must be practised.

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[1] Amer. Jour. Path., 1931, vii., 209.
[2] Science, 1931, lxxiv., 371.
[3] Amer. Jour. Path., 1932, viii., 271.
[4] Brit. Jour. Exp. Path., 1928, ix., 216.
[5] Science, 1920, li., 371.

NAKED-EYE APPEARANCES

Eggs opened 20 to 24 hours after inoculation show, if the chorio-allantoic membrane is spread out under water, a distinct though slight opacity over areas which correspond in position and size with areas of definite papular growth in eggs of longer incubation. After 44 to 48 hours the affected area is distinctly swollen and opaque with, in some cases, pinpoint markings of distinct white or yellow colour scattered throughout. By the fourth day the growth varies considerably in extent in different eggs, even with the same inoculum. Rarely there may be a simple papule of the size of a small pea, raised and translucent, white or yellowish, with a small area of membrane not markedly thickened round it but more opaque than the normal membrane, which is quite clear and translucent. It is a common experience to find areas of approximately 1 inch by ½ inch of confluent papules showing a tendency to umbilication here and there, so that the area is opaque, thickened, and greyish, contrasting markedly with the healthy membrane. At the margins small isolated papules may be present. Occasionally, and we think especially with the first passage on the chick embryo membrane, isolated papules scattered here and there are met with alone. There appears to be some congestion of the underlying allantoic vessels; the growth, however, as far as we have observed is, to the naked eye, on the chorion side and towards the shell membrane. It is interesting to recall that the chorio-allantoic membrane of the chick consists of ectoderm next the shell membrane, below that of mesoderm carrying the allantoic vessels, and below that again of a layer of entoderm lining the allantoic cavity; we believe that nervous tissue does not develop to any extent in the chorio-allantoic membrane. On one occasion we met with an infected area which showed quite an unusual congestion with hæmorrhages so far as our experience goes; part of this has been kept for examination, but as the pooled vaccine from this and other normally developing vaccine lesions was not bacteria-free, it is possible that the virus itself was not responsible for the condition observed. Our experience in general is that the infected area is not hæmorrhagic, and this contrasts with the findings of Woodruff, Goodpasture, and Buddingh, when using a strain derived from neuro-vaccine. We have never seen the embryo affected.

LARGE SCALE PRODUCTION

We have used for the production of a large quantity of chick vaccine lymph an initial inoculum of the first passage on chick membrane. Unless the material from a large number of dermal papules on the rabbit were collected it would not be possible to obtain sufficient infective material to inoculate a large number of eggs. Accordingly we commence by inoculating the rabbit intradermally with a diluted calf lymph. The material is collected on the fourth day, is examined for sterility and perhaps potency, and is then inoculated into a first series of fertile eggs—a few in number. These are opened four days after inoculation and the material—a first passage on chick membrane—is collected. It may be at once ground up with saline solution, approximately 1 in 10, and used successfully as an inoculum, or, as in the large scale production experiment we have carried out, the first passage material, after storage in its original condition in 50 per cent. glycerin and water in the cold room at approximately −10° C. for just over two months, is washed in two changes of sterile water to get rid of much of the glycerin and then ground up with sterile physiological saline solution, approximately 9 volumes to 1 volume of material.

While the material to be used as an inoculum was being prepared two groups of eggs were being incubated. On the tenth day of incubation they were divided into two groups. *Group 1:* 19 eggs were inoculated, the openings closed with hard paraffin, and then incubated four days. They were then opened aseptically. Twelve showed good infection with the virus—nine a very heavy infection. Of the remainder, six eggs should not have been inoculated, as, from their size, the embryos must have been dead before inoculation. One apparently had died as a result of the operation. From 11 eggs the infected areas removed by scissors from the rest of the membrane, after a slight washing in sterile water to get rid of any yolk adherent, were weighed; approximately 10 per cent. was allowed arbitrarily for adhering water; after this deduction the weight was 18·3 g. *Group 2:* Nineteen eggs, after a similar period of incubation following inoculation, were also opened. Seventeen were found infected and the infected material, after deduction of 10 per cent. for adhering water, weighed 17·8 g.

The material was then treated exactly as the calf vaccinal material is treated in our routine work. It was ground down in a modified Chalybaus machine with four times its weight of 50 per cent. glycerin in distilled water and 0·01 per cent. clove oil. From these 28 eggs, therefore, 36·1 g. of material were collected. Now, 1 g. of calf vaccinal material is calculated to be sufficient to vaccinate about 200 persons, so that if the chick lymph were of similar potency as the calf lymph we estimate that over 7000 persons could have been vaccinated by the product from these eggs.

STERILITY AND POTENCY

The chick material as prepared with glycerin was investigated as regards (*a*) sterility, (*b*) potency.

(*a*) *Sterility.*—Both prepared lymphs were sterile (two days at 37° C. followed by one day at room temperature). 0·1 c.cm. amounts mixed with agar in plates were examined. Also streak examinations were carried out on prepared agar plates. Further, 0·1 c.cm. of each was examined in cooked meat media (Robertson's bullock heart medium) under strict anaerobiasis and proved sterile.

(*b*) *Potency.*—Potency tests by scarification methods showed that they produced quite comparable results on rabbits to those given by a good strong calf vaccine lymph, and gave characteristic appearances. The potency results gave readings of a confluent infection in 1 in 1000 dilution and five to seven vesicles or papules in 1 in 10,000 dilution in normal saline solution.

IMMUNITY

Immunity experiments showed that when this chick membrane vaccine lymph was diluted 1 in 100 with saline solution and applied to scarified skin areas of rabbits previously immunised by calf vaccine lymph (by the scarification method) no infection resulted. Control applications of the same dilutions of calf vaccine lymphs applied to these rabbits in all frogs except in two which had received pitressin, where they were fully expanded.

The melanophore test for pituitrin is probably more sensitive than the pressor test, and also is believed to be specific for the active principle of the posterior lobe of the gland. These negative results with the C.S.F. strongly suggested, therefore, that hyperactivity of the posterior lobe of the pituitary could be excluded as an explanation for the high blood pressure.

Further investigation was then made to determine whether any pressor substance could be detected in the urine. On some 20 separate occasions during a period of two years, fresh unconcentrated specimens of urine from this boy were tested for the presence of pressor substances by intravenous injection into pithed or urethanised cats. On every occasion a considerable rise of blood pressure was found to occur in the experimental animal, although the extent of the rise varied from time to time. Fig. 2 shows how marked was the effect sometimes obtained. The character of the rise in blood pressure was similar to that which occurs with adrenaline and other pressor bases, and was accompanied by tachycardia. In further experiments the rise of pressure was found to be due to peripheral vasoconstriction; Fig. 3 shows the result of a typical experiment in which the rise of blood pressure was accompanied by a decrease in the intestinal vascular volume. Complete nicotinisation of the experimental animal in order to paralyse ganglion cells did not affect the pressor action (Fig. 4), but complete paralysis of the vasomotor myoneural junctions by ergotoxine resulted in a typical "reversal" effect with a fall of blood pressure similar to that which occurs with adrenaline.[12] This is shown in Figs. 5 and 6 where the action of adrenaline and the patient's urine are compared after complete ergotoxinisation of the experimental animal. The substance must, therefore, stimulate both vasoconstrictor and vasodilator nerve-endings as adrenaline is known to do.

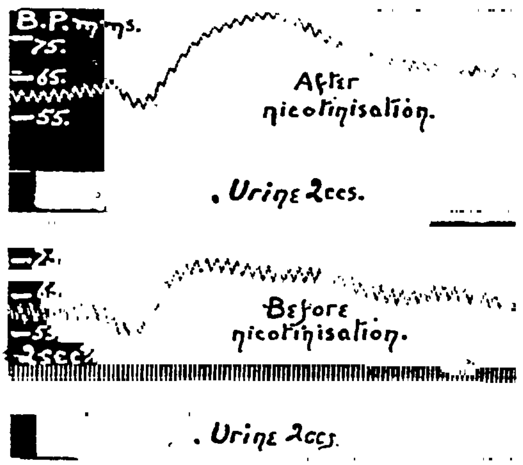

FIG. 4.—Cat. Pithed. Artificial respiration. Carotid blood pressure. 2 c.cm. urine from patient. Before and after complete nicotinisation.

The patient's two brothers were also investigated. Both were found to have a blood pressure at the upper limit of normal or slightly above, but without definite evidence of cardiovascular hypertrophy, either clinical or on radiographic examination of the heart and aorta. Their urines were tested for pressor substances on several occasions, but with negative results. Fig. 6 shows the results of a typical experiment in which the effects of intravenous injections of 2 c.cm. of urine from the patient and from each of his two brothers are compared in a pithed cat before and after complete ergotoxinisation.

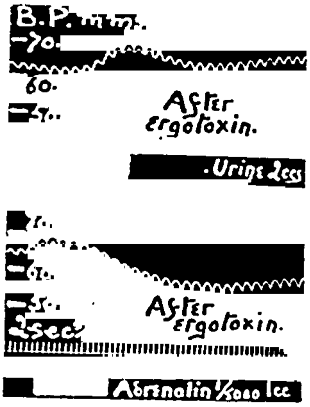

FIG. 5.—Cat. Pithed. Artificial respiration. Carotid blood pressure. Complete ergotoxinisation. Adrenaline 1 c.cm. 1/5000, and 2 c.cm. Urine from patient.

DISCUSSION

These investigations show that this patient, who had a persistent arterial hypertension during adolescence, was excreting in his urine considerable quantities of some pressor substance with a physiological action upon the cardiovascular system similar to that of adrenaline and allied pressor bases. The urine produced a considerable rise of blood pressure upon intravenous injection into experimental animals and this was shown to be due to stimulation of vasoconstrictor nerve-endings. It seems likely that such excretion of a pressor substance in the considerable quantities found bears directly upon the cause of the hypertension in this boy. Numerous control observations upon normal urines and urines of other patients with high blood pressure never showed any pressor effect. Normal unconcentrated urine usually produces a fall of blood pressure upon injection due to the potassium salts which it contains, as was pointed out by Humphry and Dixon.[13]

Nevertheless, it has long been known that minute traces of some pressor substances are normally excreted in the urine,[14–17] and Bain obtained evidence to show that their excretion is sometimes diminished in high blood pressure, particularly when gout and chronic renal disease are accompaniments. Such substances are present in so small an amount however that their detection requires that the urine be concentrated many times, and that the concentrate be tested for pressor activity. Abelous and Bardier[14] found that the minimum dose of extract which was required to produce any rise of blood pressure in the dog corresponded to 100–150 c.cm. of urine, and almost always in their experiments three to ten times this quantity was used for each test. Barger and Walpole[15] were unable to obtain sufficient of the pressor base in normal urine for identification, although they evaporated 30 litres. Bain[16 17] used injections of 2–3 c.cm. of an extract of which 6–10 c.cm. corresponded to 2½ litres of urine. It is clear that the excretion of the pressor substance in the present patient's urine is of an entirely different order from that dealt with by these former observers, and must be at least several hundred times greater.

There is, however, one previous account in the literature of a patient with high blood pressure in whom the unconcentrated urine was found to contain considerable quantities of a pressor substance. This was a case of acromegaly with cardiovascular hypertrophy recorded in 1910 by Humphry and Dixon.[13] They concluded that the pressor substance most probably belonged physiologically to the group of pressor amines, so that their patient and the one recorded here would seem to be similar in so far as hypertension in both was associated with the excretion in the urine of some member of this group of substances. In both cases the pressor substance appeared in the urine in quantities of approximately the same order.

There are many possible explanations to account for the high blood pressure in the present patient in view of the results of the investigations. Tigerstedt and Bergman[18] and others[19–22] have described the recognition of a pressor substance to be found in extracts made from kidney tissue, and although this is not a special property of renal extracts[19 23] it has been claimed that this substance, "Renin," may be concerned in producing high blood pressure when this follows damage to the kidneys, as in nephritis. But in the present patient there was no evidence of this or of functional impairment of these organs. Probably, therefore, the pressor substance was merely appearing in the urine as a result of excretion by the kidneys, and was being manufactured elsewhere in the body. From what other source it may be derived is not known. One explanation would be an abnormality of metabolism analogous to pentosuria, cystinuria, or alcaptonuria, but with the unfortunate sequel that the abnormal metabolite happens to be a vasoconstrictor substance.

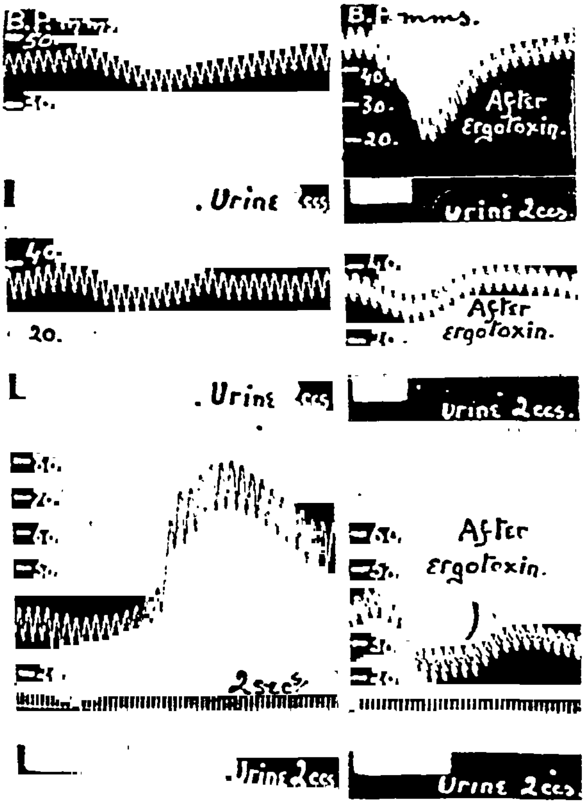

FIG. 6.—Cat. Pithed. Artificial respiration. Carotid blood pressure. Before and after complete ergotoxinisation. The two upper and two middle sections show effect of 2 c.cm. urine from patient's two brothers. The two lower sections show effect of 2 c.cm. urine from patient for comparison.

SUMMARY

A case of adolescent hypertension is described in which considerable quantities of a pressor substance were excreted in the urine. The pressor substance was shown to be related to adrenaline physiologically in that it stimulated vasomotor nerve-endings. It is suggested that the patient may be an example of high blood pressure resulting from an acquired or inborn error of metabolism.

The investigations were made while working as Medical First Assistant to the London Hospital and as Gillson scholar of the Society of Apothecaries.

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THE PATHOLOGICAL DIAGNOSIS OF FEMALE GONORRHŒA

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THIS paper shows the relative values of the various pathological tests employed in the diagnosis of female gonorrhœa.

The results of investigations, performed on the first attendance of the patient, are analysed in 500 consecutive cases of gonorrhœa definitely diagnosed by means of: (1) smears; (2) cultures; (3) the gonococcal complement-fixation test of the blood-serum. These three pathological methods are used as a routine at the London County Council clinic at Whitechapel, and no case is labelled with such a serious diagnosis as gonorrhœa unless or until pathological tests have proved the presence of the gonococcus; clinical findings alone are insufficient.

SMEARS

These were taken from both the urethra and the cervical canal and were stained with Jensen's modification of Gram's stain. Methylene-blue is not employed because it does not differentiate the mixed organisms which are so abundant in smears from female cases. Table I. shows the analysis of the positive results obtained by smears from the urethral and cervical sites, and the percentage that would have been missed had only one site been examined. Forty-nine (9·8 per cent.) of the 500 cases were positive in smears *only*; of these, 19 were positive in the urethra, 17 in the cervix, and 13 in both urethra and cervix.

TABLE I.—*Analysis of Positive Smears.* (49.)

Site.	Number and percentage.
Urethra	19 (38·7)
Cervical canal	17 (34·6)
Urethra and cervical canal ..	13 (26·5)

CULTURES

Urethral and cervical cultures were taken as a routine on a medium of hydrocele agar with a pH of 7·5. This medium is not only translucent but it has the advantage of being transparent, and the gonococcus flourishes on it even when in severe competition with such organisms as staphylococci and *Bacillus coli*.

The cultures were incubated at a temperature of 37·5° C. for half an hour before use, and were returned to the incubator immediately after inoculation. The oxidase reaction was employed as an aid in detecting the gonococcal colonies. In this test the dye used is dimethyl-para-phenylene-diamine-hydrochloride which produces a definite range of colour if gonococcal colonies are present.[1] By its use one or two minute gonococcal colonies which would otherwise have been overlooked may be detected on a slope covered with a profuse growth of other organisms. The diagnosis was confirmed by staining and microscopy as coliform organisms may occasionally cause a pseudo-oxidase reaction.

If the urethra had been tested without the cervical site 34·6 per cent. would have escaped diagnosis. Had the cervical canal alone been examined 38·7 per cent. would have been missed. Table II. shows the analysis of the positive results obtained by cultures from the urethral and cervical sites and the percentage that would have escaped detection had only one site been examined.

TABLE II.—*Analysis of Positive Cultures.* (156.)

Site.	Number and percentage.
Urethra	29 (18·5)
Cervical canal	70 (44·8)
Urethra and cervical canal ..	57 (36·5)

The cultures alone were positive in 156 cases (31·2 per cent.); of these, 29 were positive in the urethra, 70 in the cervical canal, and 57 in both urethra and cervix. Had the urethra been tested without the cervical canal 44·8 per cent. would have been missed; if the cervical canal alone had been examined 18·5 per cent. would have escaped diagnosis.

In the remaining 295 cases, 178 (35·6 per cent.) were positive in both smears and cultures, and 117 (23·4 per cent.) were positive in the complement-fixation test only. This shows that cultures are more than three times as efficient as smears in the detection of gonorrhœa, and that if the facilities for testing are limited, the cultural method has more chance of success than the others.

THE GONOCOCCAL COMPLEMENT-FIXATION TEST

This test demonstrates the presence or absence of the specific gonococcal antibodies in the blood. It is therefore not altogether dependent on the presence of gonococci in the tissues. According to Price[2] the production of these specific antibodies depends on:—

(1) The age of the infection; the test rarely becomes positive before the third or fourth week.

(2) The anatomical spread and extent of the disease, which largely depends on the age of the infection, the reaction of the tissues, and the treatment, if any, which the case had received.

(3) The reaction of the tissues to the gonococcus. A positive fixation result may never be obtained in the type of patient known as a "gonorrhœal carrier." In these cases the smears and cultures may be persistently positive although the gonococcal fixation test remains negative. Frequently a negative result is also obtained in very mild or indefinitely localised infections.

(4) The stage at which treatment is instituted and the efficiency of that treatment. Cases which commence treatment during the first week of the disease may show a persistently negative or only a weakly positive reaction throughout the course of the illness. When the acute stage has subsided the complement-fixation test is often the best means of deciding whether the residual inflammation is due to the gonococcus or to a secondary infection by organisms, such as streptococci or coliform bacilli, as, after several weeks of efficient treatment in the female, the gonococcus is only found with difficulty in smears and cultures.

The reaction becomes negative after clinical cure in about three to four months. If the reaction remains positive in the face of apparent cure it is a definite indication of the presence of an undetected gonococcal focus in the body. The patient should be kept under observation until the focus, such as an early salpingitis, endometritis, bartholinitis, or an infection of Skene's follicles has been discovered. A positive reaction after the disappearance of all clinical signs may be due to, or prolonged by, the use of vaccines during the course of treatment. If a positive reaction is due to the administration of vaccine alone, a decline in strength of the test is quickly observed when this form of treatment is discontinued, and it ultimately becomes negative in about six weeks. Constant supervision is necessary, and it is essential that the clinical history and the clinical state should be closely considered when interpreting the results of the reaction.

With the exception of the rare condition of cross-fixation a positive reaction is definite evidence of a previous or present infection.

CROSS-FIXATION

This condition of cross-fixation is very rare, and personally I have only met five cases.

Oliver showed that occasionally false-positive reactions are given in some catarrhal conditions of the nasopharynx.[3] That these reactions are caused by the presence of the organisms *Micrococcus catarrhalis* and *M. flavus* was also demonstrated by Price.

Persistently positive fixation tests may occur in the two following types of case: (1) those in which there is a double infection, the gonococcal infection being complicated by the *M. catarrhalis* or *flavus*; (2) those in which *M. catarrhalis* or *flavus* is present without any evidence of the presence of the gonococcus. If any doubt exists, monthly parallel quantitative tests should be performed on the patient's serum using a gonococcal antigen against an antigen of *M. catarrhalis* or *flavus* as the case may be. These tests will show a steady fall in strength when using the gonococcal antigen, whereas those of the *M. catarrhalis* or *flavus* will remain comparatively constant.

Table III., drawn up by Price,[2] demonstrates this point:—

TABLE III.—*Highest Dilution Serum giving a Positive Reaction*

Monthly reaction.	Gonococcal antigen.	Catarrhalis antigen.
1st	1 in 60 ..	1 in 80
2nd	1 in 30 ..	1 in 80
3rd	1 in 10 ..	1 in 80
4th	1 in 5* ..	1 in 80
5th	Partial positive 1 in 5 ..	1 in 80

* Standard dilution of serum used in the test.

In 1931[4] I reported a case of apparent gonococcal cross-fixation in a small boy; he was brought to the clinic to exclude any possibility of gonococcal infection, as his father had a previous history of gonorrhœa which had relapsed. The child's fixation test proved to be positive on two occasions, although clinically there was no evidence to support this. Smears from the nose and posterior fauces showed Gram-negative diplococci and cultures taken from these sites showed similar organisms. The organism responsible for this cross-reaction proved to be *M. flavus* 1, but as no antigen of *flavus* 1 was available it was impossible to perform parallel reactions and thus establish an end-point.

As a sequel to the foregoing case a female child of 9 months otherwise healthy, had snuffles and a purulent nasal discharge which had been present since birth. On examination congenital stigmata were absent but a profuse nasal discharge was found. The mother had a history of gonorrhœa which had been treated at Sheffield-street Hospital nine months previously. Her Wassermann reaction was negative. The child's Wassermann, Kahn, and gonococcal fixation tests were all negative. Smears taken from the nose showed streptococci, pneumococci, and Gram-negative diplococci. Cultures taken at the same time grew streptococci, staphylococci, and *M. catarrhalis*. With the *catarrhalis* antigen the complement-fixation test was strongly positive.

ANALYSIS OF THE FIXATION TEST

The results of the complement-fixation test in 500 cases were analysed on the result of the reaction of the blood when it was taken on their first visit. A positive fixation test was given in 293 cases, while 207 were negative. Table IV. shows the percentage of results in the 500 cases.

TABLE IV

Reactions of G.F.T.	Cases and percentage.
Positive	.. 293 (58·6)
Negative	.. 207 (40·1)

Fifty of the 207 cases with a negative fixation test on the first examination showed a positive serological reaction at a subsequent date, so that ultimately 343 cases, or 68·6 per cent., of the 500 cases gave a positive fixation result. The 293 positive cases were divided on analysis into the following three groups as shown in Table V.

TABLE V

Clinical findings.	Smears and cultures.	Cases and percentage.
Typical gonorrhœa ..	Positive	151 (30·2)
	Negative	117 (23·4)
No evidence	"	25 (5)

Cases totalling 151 (30·2 per cent.) were positive; these also had positive smears or cultures; 117 cases (23·4 per cent.) were positive, but the smears or cultures were negative, and these cases showed definite clinical evidence of infection, such as profuse purulent or cervical discharge, erosion of the cervix uteri, or bartholinitis.

Twenty-five cases (5 per cent.) had a positive test with negative smears and cultures, but showed no definite evidence of gonococcal infection clinically. This group undoubtedly contains those cases of latent gonorrhœa which are comparable to latent cases of syphilis in which serological evidence alone shows that the disease exists. Some cases of cross-fixation may also be contained in this group; if so, they were not discovered. The 207 negative cases were divided into three groups according to the time which had lapsed since the date of infection. Table VI. shows how the highest percentage of negative results are in the first group with the shortest period of infection.

Cases totalling 131 (26·2 per cent.) had a negative test, but positive smears or cultures proved the diagnosis. As far as could be reasonably ascertained the time since infection occurred in this group was from one to three weeks. In 34 cases (6·8 per cent.) whose date of infection was three weeks or over there was a negative reaction with positive smears or cultures. In 42 cases (8·4 per cent.) with positive smears or cultures but a negative fixation test, the time of infection was unknown.

TABLE VI

Time since infection.	Smears and cultures.	Cases and percentage.
1 to 3 weeks ..	.. Positive	131 (26·2)
3 weeks or over ..	.. "	34 (6·8)
Unknown ..	.. "	42 (8·4)

The remaining 157 cases continued to have a negative reaction. In these cases, owing to adequate and early treatment or to a sufficiently high immunity of the tissues, the infection remained sufficiently localised to prevent the test becoming positive. This series also includes gonococcal carriers whose reaction remains negative because of the poor and inadequate response of the tissues to the infection.

Fifty-eight of these 500 cases had a previous history of gonorrhœa which in some cases was recent. The fixation test was positive in 56 (96·5 per cent.) and negative in 2 cases (3·4 per cent.); this tends to show that the immunity produced by an attack of gonorrhœa is transient.

COMPLICATIONS AND THE GONOCOCCAL FIXATION TEST

In 67 (13·4 per cent.) of these 500 cases complications were present on their first attendance at the clinic.

Twenty-six presented varying degrees of *bartholinitis*, of which 20 (76·9 per cent.) had a positive fixation test. In 4 of these cases gonococci could not be demonstrated in the pus. The remaining 6 cases (23 per cent.) with negative reactions had a bartholinitis, mostly of the chronic fibrotic variety.

Arthritis was present in 18 cases, of which 15 (83·3 per cent.) gave a positive reaction, while 3 (16·6 per cent.) were negative. These cases had been diagnosed clinically, and although no diplococci were found in the urethra or cervical canal of 7 of them, the positive reaction and the clinical appearances of the genitalia confirmed the diagnosis. *Salpingitis* in all forms varying from a mild catarrhal condition of the tubes to severe bilateral cases was found clinically in 23 cases; 20 gave a positive reaction (86·9 per cent.) and 3 were negative (13 per cent.).

It is admittedly impossible from the fixation test alone to say whether the 12 cases with negative reactions were due to the gonococcus or to some other infection, but all of them had positive smears or cultures.

In this series of 500 cases, although several patients complained of rheumatism, I was not satisfied that this disability was entirely due to the gonococcus in any one of them.

TABLE VII

Complications.	Gonococcal fixation test.	
	Positive.	Negative.
Bartholinitis	.. 20 (76·9%)	6 (23%)
Arthritis ..	.. 15 (83·3%)	3 (16·6%)
Salpingitis ..	.. 20 (86·9%)	3 (13%)
Total	.. 55 (82%)	12 (17·9%)

Table VII. reveals a percentage of 82 positive reactions among cases with complications. This is a low figure, but since this series of cases were examined a new technique has been evolved in the laboratory of the Whitechapel clinic by which the sensitiveness of the test has been increased by 21 per cent. positive reactions.[5]

RELATIVE VALUES OF THESE PATHOLOGICAL METHODS

By taking the total number of positive findings, previously quoted, of each pathological method separately (as though the other methods did not exist), Table VIII. shows their relative values.

TABLE VIII

	Positive.	Negative.
Cultures	334 (66·8%)	166 (33·2%)
Gonococcal fixation test ..	293 (58·6%)	207 (40·1%)
Smears	227 (45·4%)	273 (54·6%)

The highest number of positive results was obtained by cultures with 66·8 per cent. The gonococcal fixation test came second (58·6 per cent.), but as this test has been increased in sensitivity by 21 per cent. since these figures were obtained, the corrected figure (79·6 per cent.) is more accurate. Smears are a poor third with only 45·4 per cent. positive findings. This means that by using this method alone, which is prevalent practice, the alarming proportion of 54·6 per cent. of cases with gonorrhœa escape detection.

CONCLUSIONS

1. Cultures produced the highest number of positive results (66·8 per cent.).
2. The value of the gonococcal complement-fixation test, as shown by this series, is second (58·6 per cent. positive results), but the corrected figure, 79·6 per cent. when the latest technique is used, places this test first. It has a definite place amongst the diagnostic methods of gonorrhœa, but the clinical history and condition must be closely considered when interpreting the result of the reaction. In many cases it is indispensable, as 142 cases (20·8 per cent.) were discovered which otherwise would not have had their true nature revealed.
3. Smears alone, even when stained with Gram's stain, give very poor results (45·4 per cent.); no less than 54·6 per cent. are overlooked. This figure is even greater if methylene-blue is the only stain employed.
4. Whenever possible the three methods should be combined. The results from one method alone may not be dependable.
5. In gonococcal infections errors in diagnosis may lead to such serious consequences both for the patient and the medical attendant, and the underlying cause of the trouble is frequently so elusive, that every possible method of diagnosis should be used so that the percentage of mistakes is reduced to a minimum.

I wish to express my sincere thanks to Dr. T. Anwyl-Davies for permission to publish these data and for many helpful suggestions.

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DONATIONS AND BEQUESTS.—The late Mr. Henry Trueman Mills, of West Langton, Leicestershire, left among other bequests £100,000 to the Leicester Royal infirmary, "to be held as a permanent endowment of the ward about to be erected at the said infirmary at my expense and to be known as the Mills Ward"; £5000 to the Norfolk and Norwich Hospital; £5000 to the Market Harborough and District Cottage Hospital and Nursing Association; £5000 to the British Home and Hospital for Incurables, Streatham; £5000 to the Royal Hospital and Home for Incurables, Putney; £5000 to the Royal Midland Counties Home for Incurables, Leamington; and £5000 to the Leicester, Leicestershire, and Rutland (Incorporated) Institute for the Blind. The residue of the property will be divided equally between the Leicester Royal Infirmary, the Norfolk and Norwich Hospital, the London Hospital, St. Thomas's Hospital, and the Middlesex Hospital.

Clinical and Laboratory Notes

BRONCHIAL DIVERTICULOSIS

BY H. V. MORLOCK, M.C., M.D., M.R.C.P. LOND.
AND
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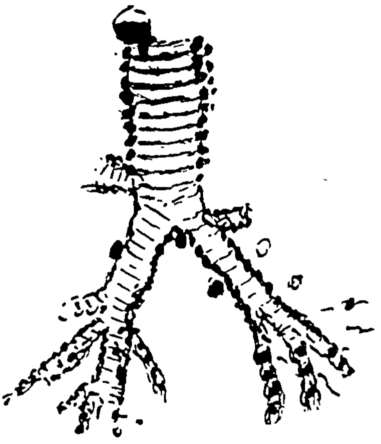
PHYSICIANS TO CITY OF LONDON HOSPITAL FOR DISEASES OF HEART AND LUNGS

STRUCTURAL abnormalities of the tracheobronchial tree have been regarded as rare, but modern methods of investigation with lipiodol and bronchoscopy reveal abnormalities more often than was suspected. Of those we have seen, apart from several cases of congenital bronchiectasis and one case of transposition in dextrocardia, the majority have been of minor importance. The following case is interesting for various reasons.

A man of 50 years complained of a cough with a large quantity of purulent expectoration. The physical signs were those of bronchitis and emphysema. The skiagram showed only increase of striation. Two years previous to admission patient had been in another hospital where, after a lipiodol injection had been done, he was told that he had bronchiectasis. Following our routine in the investigation of all cases of bronchiectasis we bronchoscoped this patient. We found at this examination a condition which we had not met with before nor seen described, though Jackson casually mentions that diverticula may occasionally be found in the trachea.



Bronchoscopic findings.—The trachea was considerably larger in diameter than normal; between each ring of the trachea the mucous membrane was deeply depressed and in many of the intercartilaginous depressions small openings could be seen. The condition was present throughout the length of the trachea and the right and left main bronchus as far as could be seen with the bronchoscope when it was fully inserted; further there appeared to be an abnormal number of very small bronchial openings branching directly off the main bronchi. Through the bronchoscope the bronchial tree was injected with 40 c.cm. of lipiodol and a skiagram was taken.

Skiagraphic findings.—The result fails to show a bronchiectasis of the ordinary type but shows a dilatation of the trachea and the whole bronchial tree, and the diverticula were filled with lipiodol. The accompanying Figure shows the salient points more effectively than a reduced print. The trachea is markedly widened and at the level of the top of the manubrium is about a third as wide again as the normal trachea; at this level a large cyst is seen about the size of a shilling half filled with lipiodol. The intercartilaginous rings are marked with very deep depressions in which pools of lipiodol lie; these depressions are irregular in shape and in some there are patches of lipiodol which appear to be outside the diverticula. The irregularity and increase in size is continued all down the bronchial tree and the bronchi have an appearance suggestive that multiple little branches are present, as seen in congenital bronchiectasis. The irregularity of the smaller bronchi is shown by beading which is rather different in appearance to that ordinarily seen; the outlined diverticula and various roundish patches of lipiodol are seen which appear to be outside the bronchial tree.

We report this case because it may be of help to radiologists and clinicians in recognising the condition when it is seen in lesser degree. For the condition we suggest the name of bronchial diverticulosis. The further study of this type of case may throw light on the development of bronchiectasis, especially the congenital form, to which it appears to have a superficial resemblance.

THE USE OF CHLOROFORM CAPSULES DURING LABOUR

By Arthur Rees, L.R.C.P. Edin., M.M.S.A. Lond.

Within the past few months an investigation as to the value of chloroform capsules during labour has been carried out, under my supervision, at Queen Mary's Maternity Home, Hampstead. Seven qualified midwives have taken part in this investigation, and although a certain number of cases, especially among the earlier ones, have been carried out under my direct supervision, the vast majority have been under the sole responsibility of the midwife conducting the case. Some of us have had previous experience in the use of these capsules, but this investigation has been approached with an open mind, quite unbiased by any preconceived opinion. The conclusions arrived at are based entirely on this series of cases.

THE INVESTIGATION AND ITS RESULTS

The series comprises 100 cases, which were not in any way selected. Each case as it came to the Home was taken, only those which required a general anæsthetic being excluded.

The ages of the patients varied from 19 to 41 years, and consisted of 39 parous for the first time, and 61 whose parity varied from the second to the sixth time. In all cases the presentation was either primarily a vertex, or one turned to a vertex during prenatal care. That the cases were not selected is evidenced by the fact that the series contains several showing obstetrical abnormalities. Among these was one generally contracted pelvis in which spontaneous delivery was effected. Six showed a moderately raised blood pressure with or without albuminuria. One antepartum hæmorrhage due to marginal placenta prævia is also included, while another is a case of twins.

The average number of capsules used was 3·41, which figure includes those used to facilitate the insertion of superficial sutures. The average interval between each capsule works out at 10·16 minutes.

Following the questions asked on the form supplied by the National Birthday Trust Fund the observations on the apparent effect of the capsules may be tabulated as follows:—

Apparent effect on uterine contractions.	None	84
	Decrease	16
	Increase	0
Apparent effect on pain felt.	None	5
	Some	75
	Great	20
Apparent effect on voluntary effort.	None	60
	More forcible ..	3
	Less forcible ..	37
Patient's opinion.	No use	8
	Some use	42
	Great use	50

A better estimate of the value of these figures may perhaps be obtained from a less detailed analysis. Thus, in 84 per cent. of cases there was no apparent effect on the uterine contractions, whereas only 16 per cent. showed a decrease. In 95 per cent. of cases there was apparent lessening of pain felt, while 5 per cent. showed no difference. Voluntary effort was apparently unaffected in 60 per cent. and diminished in 37 per cent., while in 3 per cent. of cases there was a definite increase. The patients themselves expressed opinions in favour of the capsules in 92 per cent. of cases, only 8 per cent. considering them of no use. In connexion with this latter, it is interesting to note the various opinions expressed by primiparous patient, and multiparous patients. These were as follows:—

Primipara. 39 cases.				Multipara. 61 cases.		
No use..	4 (10·25%)			No use..	4 (6·55%)	
Some use	18 (46·15%)	89·7%		Some use	24 (39·34%)	93·4%
Great use	17 (43·58%)			Great use	33 (54·09%)	

It is seen from these figures that those in childbirth for the first time appreciated the use of the capsules to almost the same extent as those who had experienced childbirth on at least one previous occasion—i.e., 89·7 per cent. as against 93·4 per cent. I must confess to some surprise at this result, as I should have expected the balance of appreciation to be much more on the side of the multipara, and in fact my own observations led me to think such to be the case.

Coming now to the "ill-effects." In no case was there any ill-effect to the child. Nine of the mothers are described as being very excited under the influence of chloroform, one being said to have become uncontrollable. In six cases delay was noted in the second stage, while there was loss above normal in eight cases during the third stage. It is probable that the use of chloroform contributed to the last two ill-effects, though it is difficult to assess to what extent. The hæmorrhage in each case responded to uterine stimulants, and could not be classed as serious. In no case did the delay adversely affect the child.

CONCLUSIONS

The results obtained in this investigation, together with personal observation of cases in the series, leads to certain definite conclusions.

In the first place, it seems to be established that the use of chloroform capsules by midwives in the second stage of labour is both safe, and in the majority of cases beneficial to the patient. Provided, of course, that due care is exercised.

Considering the method of administration several questions arise. Firstly, when should the first capsule be used? Should it be at the onset of the second stage or some time later? Experience in this series showed that the best results were obtained when the first capsule was given when definite progress in the second stage of labour became evident. Indeed, it would seem unnecessary to start chloroform early if sedatives have been given during the first stage. I would here put forward a very strong plea for the more universal, and free, use of sedatives during the first stage. Personally I am convinced that relief of mental anxiety and pain during a stage at which the mother can do nothing useful to help herself is of the utmost importance to success in the later stages.

A further question of vital practical import also arises. Can these capsules be safely used by a midwife conducting a case alone? If not, what assistance is essential? To the first of these questions the answer is, I think, in the negative. The midwife's attention is, and ought to be, concentrated on the proper conduct of the second stage, and cannot, therefore, be divided by any other issue. The answer to the second question is, in my opinion, "another trained person," and herein lies a practical difficulty in rural districts. Chloroform is certainly a potent drug and I for one would not consent to allowing any but one trained in its use to administer it, even in the form of capsules such as those used in this investigation. I am convinced that these capsules can be a very real danger to mother and child if improperly used.

In institutions, such as Queen Mary's Maternity Home, and in district work in large towns, no great difficulty should arise to prevent their use. But taking the country as a whole some different organisation to that already in existence seems to me essential if the use of chloroform capsules is to be universally adopted.

In conclusion, I wish to express to the matron and staff of Queen Mary's Maternity Home my sincere thanks for their coöperation in this investigation. Also, I wish to thank the National Birthday Trust Fund for kindly supplying the capsules.

MEDICAL SOCIETIES

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

A MEETING of this society was held on July 7th and 8th in the new Algernon Firth Institute of the University of Leeds. The chair was taken at various times by Prof. M. J. Stewart, Prof. J. W. McLeod, and Prof. R. D. Passey.

R. J. V. Pulvertaft (London) described the differentiation of bacteria by their fluorescence in ultra-violet light: the substance responsible for the effect is heat-stable and soluble in alcohol.—J. W. Howie (Glasgow) gave an account of the modifications induced in Aronson's streptococcus by growth in dilute acriflavine; at one stage rough strains without capsules were still virulent.—R. Cruickshank and A. Sharman (Glasgow) had worked out the occurrence of glycogen in the vaginal epithelium, and showed how it was related to the development of an acid reaction and the characteristic bacterial flora.—J. W. McLeod and his colleagues (Leeds) had further investigated the occurrence of the "gravis" and "mitis" types of diphtheria bacilli in Glasgow, Hull, Leeds, and elsewhere. Mitis infections were everywhere mild, but many intermediate strains had been found and appeared to be associated with forms of the disease about as severe as those with gravis bacilli.—W. M. Cumming (Grassington) found 25 bovine infections in 1177 cases of pulmonary tuberculosis in England; seven out of 31 cases which had been in close contact with cattle were bovine, and bovine infections seemed to be more frequent in the north than south.—J. McIntosh (London) had cultivated an appearance suggestive of a filtrable microbe from cases of influenza and carried it through numerous subcultures; it lived for a long time at room temperature or in the cold and could survive boiling.—C. H. Browning and R. Gulbransen (Glasgow) described a remarkable styryl compound which, injected into mice, protected them against trypanosome infections for many months.—A. A. Miles (Cambridge) showed that the firm combination of antigen and antibody in the precipitin reaction was not complete when actual particulation had begun.—S. J. Hopkins and A. Wormall (Leeds) had worked at the immunology of phenylureido compounds with proteids; they showed a specificity of their own; thus an antiserum to the serum globulin compound would react with the caseinogen and gelatin compounds.—M. H. Finkelstein (Edinburgh) confirmed his previous work on the value of absorption tests in showing the specific and non-specific components of the bactericidins of normal serum.—R. Williamson (Cambridge) showed that the constriction of the bronchioles in anaphylactic shock could be shown (but not very well) by lipiodol and X rays; also that the relative physiological dead space was increased in advanced phthisis, bronchiectasis, and pleurisy.—A. N. Drury (Cambridge) distinguished between anaphylactic and sero-toxic shock by electrocardiograms.—H. W. Florey and H. E. Harding (Sheffield) described the very alkaline mucoid fluid secreted by Brunner's glands, and how it protected the duodenal mucosa from the destructive effect of the acid gastric juice.—J. McIntosh (London) said that all the fowl tumours he had produced by tar could be classed as fibrosarcomas, though some were endothelial and some angeiomatous; one was easily transmissible by filtrates.—P. R. Peacock (Glasgow) had had no success in filtration experiments with similar tumours.—I. Berenblum and L. P. Kendal (Leeds) had produced tumours in rats and fowls with suspensions of dibenzanthracene without any fat.—L. W. Price (Glasgow) thought that all natural and experimental bird tumours could be classified into three groups—round-celled, spindle-celled, and spider-celled.—Sylvia Dickinson and R. E. Havard (Leeds) found no evidence that the reaction of the arterial blood of persons with cancer differed from the normal.—A. E. Boycott and C. L. Oakley (London) showed that the blood volume was increased after any but quite small transfusions, and that the plasma volume remained remarkably constant with a considerable loss of injected plasma protein.—C. J. Polson (Leeds), from experiments on rabbits poisoned with shale oil, concluded that glycine tolerance was the best available test of liver function.—J. Davidson (Edinburgh) demonstrated the drastic changes in the liver caused by a diet deficient in cystine.—J. B. Duguid (Cardiff) showed that an excess of acid phosphate in the food, especially combined with an excess of vitamin D, produced an interesting form of chronic nephritis in rats.—D. Baird and J. S. Dunn (Glasgow) described as the characteristic renal lesion of eclampsia a thickening of the basement membrane of the glomerular capillaries, easily overlooked on superficial examination.—Freda K. Herbert (Leeds) showed that the calcium in cerebro-spinal fluid remains relatively constant with very wide variations in the total and diffusible calcium of blood plasma; it rises in inflammatory conditions.—M. J. Stewart and S. J. Hartfall (Leeds) described a large mass of bone-marrow found by the thoracic vertebræ in a case of acholuric jaundice.—R. Carmichael and C. Oldfield (Leeds) discussed a strange example of a pseudohermaphrodite, externally a female, with a testis and good epididymis in the broad ligament, operated on for a malignant teratoma of testicular type in the pelvis.—Ella M. Hickman (Leeds) demonstrated a chorion epithelioma (presumably teratomatous in origin), with widespread metastases, in a girl of 12 years.—R. W. Scarff (London) discussed the non-keratinising radio-sensitive tumours of the nasopharynx, &c., known as lympho-epithelioma.—J. W. S. Blacklock (Glasgow) described minute fibrotic kidneys in an infant, and other kidneys with many lymph follicles in their substance.—There were, in addition, a number of demonstrations.

INTERNATIONAL PÆDIATRIC CONGRESS

This Congress was opened on July 20th in the Great Hall of the British Medical Association by the Duke and Duchess of York, the chair being taken by Dr. George Still.

The Duke of York, in opening the proceedings, emphasised the importance of the occasion. This was the first international pædiatric congress to be held in this country. The future of the nation depended on its children. Medical research to-day everywhere tended towards prevention, and the chief discussion would be on the diseases which might be conveyed to children by milk. The scientific study of children was of recent growth; there were people still living who could remember the foundation of the first hospital for children in this country. Speaking as a father, His Royal Highness voiced the gratitude of parents for the benefit which would result from the Congress.

The President, when thanking the Duke and Duchess, explained the significance of allergy in the diseases of children. Prevention, he said, was the keynote of medicine to-day.

Sir Thomas Barlow supported the vote of thanks and prophesied far-reaching benefit to the moral and physical welfare of the child as the result of the Congress.

A general discussion on

The Nature of Allergy

was opened by Prof. A. R. Rich (Baltimore). He said that while the body was acquiring an active immunity to bacteria during infection, the tissues ordinarily became hypersensitive to the protein of the infecting organism. Experiments made by himself and Mrs. Lewis had shown that the individual tissue cells of the allergic body were markedly hypersensitive even when washed free of plasma. This hypersensitive state played an important rôle in all bacterial infections, and it was becoming more and more evident that lesions and symptoms formerly supposed to be the direct result of bacterial poisons were really the result of the hypersensitive state. For many years hypersensitivity had been believed to be essential for the successful operation of immunity, but experiments had shown that immunity could be separated from allergy. Neither the spread of bacteria nor their efficient destruction depended on allergic inflammation. Dr. Rich described the experiments which proved this, and also those which showed the effect of allergy in the absence of immunity—an increased susceptibility. Obviously, therefore, allergic reactions could not be used as an index of immunity.

Prof. F. Hamburger (Vienna) defined allergy as a change in the capacity of the organism to react, caused by antigens, and dealt with its clinical aspect. The only useful clinical tests for allergy were found in tuberculosis, but the tuberculin reaction was not completely reliable unless the 1 mg. cuti-reaction were applied. Allergy developed before the onset of the disease and was continuous, but was subject to fluctuations, caused by other diseases, light, food, and unknown factors. The fluctuations might produce exacerbations of disease. Syphilis followed much the same rules as tuberculosis and vaccinia. Diphtheria included an anaphylactic reaction, but the pseudo-reaction was allergic. Apart from tuberculosis, however, the only allergic test of clinical interest in infectious disease was the blanching phenomenon in scarlet fever.

Dr. M. Péhu (Lyons) read a paper by himself and Dr. P. Woringer, of Strasbourg, on

NON-INFECTIOUS ALLERGIES IN CHILDHOOD

Non-infectious allergies, he said, represented a state of supersensitisation in the presence of substances which in normal subjects had no effect or caused a pharmacodynamic effect. These allergies might be hereditary or acquired through a preparatory contact. The paper described in detail the clinical manifestations of these allergies. Allergic reactions might be found at any age from the eczema of infancy to the migraine of adolescence. The tropho-allergens predominated in the first 12 months of life; the pneum-allergens from the second to third years on; and the others only appeared in adult life. The distinction between idiosyncrasy and anaphylaxis was arbitrary; sensitisation might occur in the germ-cells or in utero as well as after birth. No present treatment was entirely satisfactory; shock treatment was valuable, but desensitisation was the most important method. The physician must make a judicious choice among the various methods available.

Dr. R. F. Collis (Dublin) expressed the opinion that there was no evidence to show that allergy was a beneficial or defence process. One germ was now known to cause several syndromes, and the same syndrome might be caused by more than one germ. He illustrated this thesis by cases of erythema nodosum, some associated definitely with tuberculosis, and others with the hæmolytic streptococcus, the meningococcus, and the dysenteric organism; the condition was hyper-reactive tissue response to various allergens. Prof. C. C. Okell had suggested that bacterial allergy was an imperfect process in the development of immunity, which was taking place too fast in civilised communities.

Dr. Ernberg (Stockholm) said that in most cases erythema nodosum was an allergic syndrome due to tuberculosis. It appeared at a very early stage. Careful tuberculin tests and radioscopic examinations had been made in a number of cases, and had supported this theory. No tubercle bacilli had been found in the skin infiltrates, which were not equivalent to tuberculous foci but were allergic reactions. There might also be cases not due to tuberculosis, but in many cases the appearance of erythema nodosum might lead to the discovery of an unsuspected focus of tuberculosis.

Prof. Groer (Lwow) said that allergy was not a specific phenomenon; the two factors in it of the greatest importance were susceptibility, the faculty of being damaged, and reactivity, the faculty of responding to the damage. A method of measuring these factors had now been found. He described a clinical investigation showing the value of this work.

Prof. G. de Toni (Bologna) described recent Italian work on allergy. Pacchioni's study of tuberculosis had, he said, shown that hypersensitiveness preceded immunity, and was quite separate from it. His own work on histamine shock in infants had shown serious disturbances of the hydric equilibrium of the blood and an increase in blood-sugar and uric acid. In the child the humoral factor in allergic sensitisation was important, but the predominant part was played by diathesis, probably acting by means of a lowered threshold or want of equilibrium in the neuro-vegetative system.

Prof. R. Debré (Paris) emphasised the need for definition, and said that an organism was in a state of allergy if it reacted to an antigen differently the second time from the first. The association between allergy and anaphylaxis was intimate, but the two could be distinguished; the latter was characterised by violent shock and general symptoms, while the former was essentially local, slower to develop, and amenable to treatment. There were two kinds of immunity: immunity of reinfection and immunity of superinfection. The former was associated with antibodies in the blood and was passively transmissible; the latter was the symbiosis achieved by the subject of a chronic infection and was not accompanied by antibodies in the circulation. The manifestations of allergy in childhood fell into three groups: anaphylactic shock, the cutaneo-mucous allergic syndrome, and eczema of infants. There was a fundamental difference between the eczema and the others; eczema was constitutional, not acquired, and no desensitisation was possible. To it he applied the term "emphytopathy."

Dr. RATNER (New York) expressed surprise that protein hypersensitiveness had been left out of the discussion, and described animal experiments and clinical observations carried out in Bellevue Hospital. The conclusions from this work were, he said, that allergy was never inherited but always acquired; that the fœtuses of animals could be sensitised in utero through the placental circulation; that allergens might gain entrance to the blood stream by invasion or injection and there quickly cause the formation of antibodies which became fixed to the smooth muscle walls. The body was unable to destroy the excess antibodies formed, and their fixation in the cells produced the condition of hypersensitivity. Immunity might be temporary or permanent, according to the respective quantities of allergen and antibody, and to certain physiological and chemical factors such as pH and endocrine imbalance. The whole future of hypersensitiveness rested with the obstetrician and pædiatrician, who could reduce the amount of protein ingested and inhaled by mother and child. Hypersensitiveness had been indispensable in man's development of immunity.

The second general discussion was on

The Prophylaxis of Milk-borne Disease

Dr. A. PETTERSSON (Stockholm) introduced the subject with a review of the dangers, especially that of tuberculosis, and summed up the protective measures as breast-feeding, satisfactory herd-control, heating of milk, and clean handling.

Prof. BESSAU (Berlin) discussed saprophytes in milk, the colon bacillus being, he said, the most important. The decomposition of the milk itself was not dangerous. Colon bacilli grew actively in the large intestine of the artificially fed infant, but their growth was inhibited by breast-milk except in premature babies. Colostrum contained coli antibodies which might be very important in the new-born child. Diarrhœa neonatorum was very common in young animals; experiments on new-born calves had shown that the condition was due to a special pathological strain of *B. coli* only found in domesticated animals. Colostrum protected the calf, but the disease nearly always appeared immediately after birth if mature, raw, or boiled milk were given. The clinical symptoms of calf diarrhœa closely resembled those of human infantile diarrhœa. Endogenous colon bacilli spread to the upper part of the intestinal tract whenever there was an abnormal demand on the digestive powers, especially trauma. Endogenous and exogenous types might be combined. In Prof. Bessau's opinion the symptoms attributed to bad milk were all due to ingestion of living colon bacilli. The milk might taste and smell quite good. All therapeutic efforts came down to arrest of *B. coli.*

These bacilli were only facultatively pathogenic, and the conditions necessary for them to become so were: (1) the strain; (2) the number; and (3) the state of the intestinal canal. Pasteurisation in central depôts was certainly not the proper prophylactic measure; the milk might become contaminated afterwards. The only unobjectionable method of sterilisation was the Soxhlet. Dried milks could be used, or fresh milk boiled just before drinking. Prof. Bessau said that dried milk prepared by the roller process was freer of bacilli than that produced by the spray process. Buttermilk was also valuable.

Prof. G. B. ALLARIA (Turin) classified the diseases due to milk as those due to natural characteristics—e.g., excessive protein and deficiency in iron or vitamins; those due to careless grooming or animal disease; those due to contamination; those due to preparation of the milk; and those due to adulteration and sophistication. The two enemies of clean milk were, he declared, man and microbes. He outlined the Italian regulations for keeping the milk-supply pure, and insisted on sanitary conditions in the byres and milkers. There was, he said, no need for a special milk for infants if the general supply was adequately supervised, and there ought to be only one grade, no half measures being tolerated. In Europe the consumption of milk "suitable for consumption in the raw state" varied from 1 to 5 per cent. of the total consumption. The technical and economic difficulties inherent in its production, and the doubt of many pædiatrists whether raw milk was really better for infants, led to the necessity for producing a safe milk by heat treatment. The changes caused by sterilisation might easily be harmful to the infant, but pasteurisation avoided this risk and, if properly carried out, did not seriously damage the vitamins. Milk must be pasteurised immediately after milking, cooled at once and bottled, consumed on the same day, and examined each day bacteriologically. Stassano's method gave excellent results and constituted a real advance.

Prof. P. LEREBOULLET discussed the value of hygienic regulations, and municipal and collective methods, and described the measures taken in various countries. Raw milk was not an ideal food, and the only safe measure was pasteurisation of hygienically produced milk under stringent control. Failing this, milk must be boiled. It was therefore important to undertake vigorous measures in all countries for the production and sale of safe milk for children.

Dr. J. M. HAMILL described the position of bovine tuberculosis in this country and the measures taken to combat it, by eradication of disease from the herds and by pasteurisation. There was little likelihood of achieving the former aim within a reasonable time; tubercle might be found even in Grade A (T.T.) milk. Pasteurisation should, however, be accompanied by every possible effort to get clean milk; it must also be controlled to be effective. He rejected the idea that tuberculous milk in moderation was a good thing; the bovine bacillus was a grave menace to man, and not a suitable immunising agent.

Prof. FEER described work in Zürich with rachitic and other children, and advised boiling the milk.

Prof. MONRAD (Copenhagen) gave an account of a study of the effects of raw and pasteurised milk; the latter had cured scurvy, but very slowly. Pasteurised milk, in his opinion, was not clean enough to give to infants. Decomposition before the heating could not be detected by sight, taste, or smell afterwards;

bacteriological examinations of pasteurised milk had shown the presence of streptococci, colon bacilli, and even tubercle bacilli. In Denmark mothers were advised to buy raw, controlled milk in bottles, and to boil it at home for not more than two minutes. The results were very good.

Prof. P. Rahmer (Strasbourg) spoke of the prescorbutic disorders due to lack of vitamin C in milk. In his clinic attempts had been made to find a diagnostic criterion of these dystrophies, and it seemed likely that further study of urinary reactions would establish a test.

Prof. G. Frontali (Padua) urged the modification of cow's milk, in addition to ensuring its cleanliness. In Italy a simple method had been used, for the last ten years, to reduce the casein and increase the lacto-albumin content. The results had been very clearly reflected in the weight curves. Olive oil was valuable to supply the fat requirement. It tended to produce constipation and greasiness of the skin, but the latter was prevented by giving vitamin B, and the resistance to slight infections was increased by this method.

Dr. H. Bock (Berlin) spoke of the danger of contamination of milk after the bottle had been opened, and advised sterilising only enough at a time for one or two feeds.

Dr. W. C. Davison (U.S.A.) suggested that Brucella infections in children often went unrecognised, and that the implantation of *B. coli* in the upper part of the tract might be due to delay and congestion of food. Clean milk was so costly that the poor could not use it, and outbreaks of milk-borne disease still occurred in spite of its use. Moreover, milk was liable to contamination in the home. The solution of the problem was the use of dried milk with the addition of lactic acid, an antiseptic, and some carbohydrate—such as molasses, which contained iron. This mixture was cheap, digestible, and most satisfactory. Evaporation sterilised the original milk, and the lactic acid gave safety of home handling. The objections were two: vitamins were destroyed, and the taste was unattractive. Both these could be overcome.

Dr. Wright (Montreal) thought that even pasteurised milk should be boiled, and advocated evaporated milk.

Prof. J. Duzár (Hungary) said that the chief drawbacks of artificial milks were that their albumins were not properly adapted to the needs of the child, and described a preparation of bovine colostrum.

Prof. Mouriquand (Lyons) emphasised the problem of minor vitamin deficiencies; many apparently healthy children suffered from disequilibrium of one or other vitamin, revealed by histological lesions long before any clinical appearances. The child might inherit its mother's unsuspected disequilibrium, especially of vitamin B.

Prof. Noeggerath (Freiburg) stressed the importance of finding out exactly what effect all the proposed measures of changing or treating the milk had on the child's nutrition.

Prof. L. Spolverini (Rome) said that all artificially fed babies were tropho-labile, probably on account of the excessive protein and salts in cow's milk, favouring intestinal putrefaction with all its results and insolubility of fæces. Research had shown that the addition of 6 per cent. gum arabic obviated many of these difficulties, producing steady increase in weight and stabilisation of the digestive functions, with increased nitrogen retention. A dried milk containing gum arabic had been produced, and had given excellent results over five years.

Prof. Jundell (Stockholm) pointed out that any deficiency in the milk applied even more to cream and butter. Centrifugalisation might concentrate tubercle bacilli in the cream.

Dr. Petrányi (Hungary) described the preparation of vitamin C in crystalline form from paprika.

Other Communications

Research in the *common infectious diseases* of children has not yielded any great discoveries since the last congress, but the practical importance of the subject attracted a good attendance to the section dealing with it. The value of the treatment of infectious diseases with human serum was discussed. Prof. I. Jundell (Stockholm) in a paper on human adult serum as a means of protection against whooping-cough, said that in his experience it would prevent or modify the disease if given early enough. Drs. H. Baar and H. Benedict (Vienna) described the value of human serum in the treatment of malignant diphtheria. Prof. A. Eckstein (Düsseldorf) speaking on encephalitis in children, expressed the view that each variety of encephalitis is caused by its own specific virus, and is not the result of a reactivation of a single dormant encephalitis virus by the complicating infectious disease. He described the transmission of encephalitis to a monkey with a virus obtained from a child with herpes zoster. From this case a contact child developed chicken-pox 18 days later, and from the vesicles of this child Prof. Eckstein was able to transmit an encephalitis to another monkey.

Dr. Robert Gittins (Birmingham) spoke of *anæmia and reticulosis.* He described the types of reaction of the reticulo-endothelial system found in four cases of obscure anæmia. He regarded the reticulo-endotheliosis as a reaction to blood destruction and abnormal erythropoiesis. The syndrome, known as von Jacksch's anæmia, is a regenerative phase of chronic erythronoclastic (hæmolytic) anæmia, and shows these features. It may pass into an aplastic phase in which reticulo-endothelial proliferation remains as the outstanding feature. Many obscure anæmias probably fall into this group.

Tuberculosis in childhood was discussed in papers by Prof. P. F. Armand-Delille (Paris), Dr. H. Bock (Berlin), and Dr. P. Thomazi (Paris). Prof. Armand-Delille took the opportunity of presenting a survey of the anatomical and clinical studies he and his colleagues have been systematically making into the different forms of pulmonary tuberculosis in infancy and childhood.

The congress absolved itself from the plaint that physicians devote too little time to the treatment of disease by discussion of communications by Prof. S. Monrad (Copenhagen) on the treatment of epilepsy in infancy and childhood, in which he advocated the use of sodium borate; by Drs. Pehu (Lyon) and Worringer (Strasbourg) on the treatment of infantile eczema; by Prof. E. Nobel (Vienna) on ten years of thyroid therapy; by Dr. O. Saxl (Prague and Dr. S. Karelitz (New York) on the treatment of alimentary toxicosis; by Dr. B-S. Jenö (Hungary) on the treatment of acute anterior-poliomyelitis. Probably the most important therapeutic advance reported was that mentioned in a paper by Drs. Grayzel, Jacobi, Warsall, Bogin, and Kramer (New York) on clinical and experimental studies in amyloidosis. Their results showed amyloid disease is influenced by giving dry powdered liver; in their experience sufficient liver stays the progress of waxy disease, and in some cases effects a cure.

The next congress will be held in Rome in 1936, with Prof. L. Spolverini as president.

INTERNATIONAL SOCIETY OF ORTHOPÆDIC SURGERY

THE second congress of this society was held at the house of the Royal Society of Medicine from July 19th–22nd, under the presidency of Prof. G. NOVÉ-JOSSERAND, of Lyons. After he had given his opening address on July 20th a discussion was held on the

Mechanism of Articular Movements

H. VON BAYER illustrated in a graphic manner by means of ingeniously contrived models the fact that the action of a muscle varies according to the position of the joint, and according to whether it acts against resistance or not. Thus when the leg is hanging down and not bearing weight, contraction of the adductor muscles of the thigh adducts the leg. When weight is borne upon the ball of the foot, however, and the whole leg is straight, the adductor muscles then externally rotate the leg, but when weight is borne on the ball of the foot and the hip and knee are flexed then these muscles internally rotate the leg.—E. DELITLA (Venice) and R. SCHERB (Zurich) followed the latter, contributing an interesting survey of synergism in muscular movement.

On the second day there was a general discussion upon the

Treatment of the Tuberculous Hip

in which such great authorities as J. ERLACHER (Austria), A. MAFFEI (Belgium), M. S. HENDERSON (America), E. SORREL (France), the PRESIDENT, and numerous others took part. There was an unanimity of opinion upon the unfavourable results obtained in adults by conservative treatment. It was generally felt that some form of arthrodesis operation was necessary. Such differences of opinion as arose were with regard to details. Should the operation be done early at the onset of the disease? Does the presence of an abscess influence the procedure, and is it best to do an intra-articular or an extra-articular operation, or a combination of the two? The whole meeting joined in condemning the intra-articular operation by itself. No ankylosis was obtained by this method alone.—F. H. ALBEE (New York) favoured an extra-articular graft far removed from the site of the lesion at the onset of the disease. He held that the new bone thus formed would secure for the joint greater immobilisation and would shorten the extent and the duration of the disease. He was not in favour of opening the joint cavity for fear of contaminating the graft, and thought that the presence of an abscess was a counter-indication to the operation. Sorrel agreed with Albee in all these respects, but raised the question as to whether favourable results from this operation were due to the mechanical effects of the graft or whether they were due to some mysterious effect the graft had upon the local calcium metabolism; for it was a fact that diseased hip-joints thus treated did show a remarkable tendency to recalcification. Henderson and Maffei favoured the combined operation, since by opening the joint it might be possible to deal radically with the focus of the disease. Henderson had performed two such operations in the presence of an abscess with favourable results, but on the whole preferred to wait till the abscess had dried up before interfering. Maffei, on the other hand, holds that the presence of an abscess is not a counter-indication, for an abscess alone is not necessarily an indication of the virulence of the infection, and is indeed often sterile. With regard to the treatment of tuberculous disease in children the cases discussed came under two headings: those in which it is in the juxta-epiphyseal axis, and those in which it is primarily in the joint itself. In the former case Sorrel, Erlacher, and Maffei recommended that an attempt should be made to excise the tuberculous cavity before the joint becomes involved. But in cases of primary joint lesion the opinions were fairly unanimous that a conservative line of treatment is the best. The only dissenting voice was that of Maffei, who did not agree that results were so good, and thought that a large number of adult tuberculoses were really the extension into adult life of a disease started in childhood. He considers that there are certain types of cases in which bone graft operation is justifiable in children, though he admits that a bone graft in a child tends to become absorbed, yet he too laid stress upon the remarkable power of bone graft for stimulating recalcification.

Short Papers

The third day was devoted to the reading of short papers. Unfortunately these were so numerous that the authors hardly had sufficient time to express their views. On the other hand, by compressing them into short space, opportunity was afforded to the younger orthopædic surgeons of all nationalities to exchange ideas, and their response to this opportunity was one of the most satisfactory features of the congress. Among others, VALLS (Buenos Ayres) read a most interesting paper in which he suggested that examination of the lymphatic glands might often help in the diagnosis of a joint lesion under suspicion of being tuberculous. He quoted several cases where all the usual examinations of a knee-joint were negative, but examination of a lymphatic removed from Scarpa's triangle showed definite tuberculous infection, and the subsequent course of the joint condition confirmed the diagnosis. Similarly he has had cases under observation where lymphatic glands proved not to be tuberculous and the suspicious joint lesion cleared up. In doubtful lesions of ankle and knee he removes glands from Scarpa's triangle, and in those of the elbow, wrist, and shoulder he removes an epitrochlear or axillary gland. BENTZON (Copenhagen) gave a noteworthy contribution on the surgery of Erb's obstetrical paralysis. He pointed out that it was curious that although the fifth and sixth cervical nerves supplied more than seven muscles, yet in the typical Erb's paralysis seven muscles are characteristically picked out; and he explained this phenomenon by the fact that these muscles are supplied by four nerves, all of which either pass through channels in bone or round bone or in very close proximity to bones—e.g., the humerus, so that when the arm is pulled on these nerves are taut. The other branches of the fifth and sixth muscles, such as supply the longus coli, scalenus, or subclavius, do not lie in close relationship to bones and are therefore not subjected to the same strain.

The Congress Dinner

On the evening of Friday, July 21st, Prof. Nové-Josserand presided over a well-attended and successful banquet at the Dorchester Hotel, London. The majority of the delegates were accompanied by ladies, so that the banquet became a gay social affair. Further there were only two speeches, excluding the loyal toasts, and both of them were well delivered. Mr. V. Warren Low, in proposing prosperity to the society, dwelt on the rapid strides which orthopædic surgery had made during his professional life, so that to him it seemed that its range now included the whole of surgery except that concerned with the cranial, thoracic, and perhaps abdominal cavities. The toast was responded to by Prof. Nové-Josserand, who dwelt on the value of international meetings in the promotion of science, and took the opportunity of paying an eloquent tribute to the services and memory of Robert Jones, the founder of the society and its first president.

REVIEWS AND NOTICES OF BOOKS

The Duodenum

BY EDWARD L. KELLOG, M.D., F.R.C.S., Professor of Surgery, New York Polyclinic Medical School; Attending Surgeon, New York Polyclinic and Gouverneur Hospitals. New York: Paul B. Hoeber. 1933. Pp. 855. $10.

THIS comprehensive monograph, the size of a student's text-book of the whole of surgery, is a study of the normal and pathological duodenum from every aspect. Its compilation must have entailed an immense amount of work, for the labour of examining the literature of the subject is a task of great magnitude; at the end of the book there are 121 pages of references. The text has moreover been prepared with discrimination. A full account of the anatomy of the duodenum is followed by an excellent review of the physiology in which the author has had the collaboration of Prof. A. C. Ivy, an authority on alimentary physiology. The chapters on bacteriology and methods of examination are important, and the account of the use of X rays in the diagnosis of duodenal abnormalities by Dr. A. Judson Quimby is one of the best we have seen. An interesting chapter is that describing the various forms of duodenitis, a clinical entity which is sometimes overlooked; allied to this is the question of duodenal diabetes, on which the author has made original observations.

Duodenal ulcer receives full attention both from the medical and the surgical point of view. Prof. Kellog's classification for treatment into surgical, medical, and borderline groups is to be recommended as a useful working conception when the important decision as to choice of treatment has to be made. Many medical régimes are discussed and wherever possible the proportion of cures likely to result from the adoption of any one is given. The statement that 90–95 per cent. of chronic duodenal ulcers are cured by gastro-enterostomy is only true if the standard of cure is not very strict, as a more careful perusal of current literature would reveal. A report of cases ten years after operation would be interesting and perhaps lead to some modification of present views. In the treatment of hæmorrhage from a duodenal ulcer Prof. Kellog allies himself with the majority of surgeons in counselling medical measures during the time of active bleeding and a surgical operation as soon as seems practicable. Gastric lavage is recommended. The lack of any consideration of the actual problems of surgery for hæmorrhage is a serious omission in a monograph of such size. A well-compiled section is that on duodenal obstruction. Surgical procedures are described in the last chapter of the book. They are excellently illustrated as indeed is the whole work. The volume is a notable contribution to medical literature, for not only does all significant knowledge on the more common affections of the duodenum find a place, but also knowledge of the rare forms of disease. Moreover the information is set out in a manner pleasing to read and easy to find. As a work of reference it should be in the hands of all gastro-enterologists, medical or surgical.

Surgery of the Thorax

BY T. HOLMES SELLORS, B.M., M.Ch. Oxf., F.R.C.S. Eng., Assistant Surgeon to Queen Mary's Hospital for the East End. London: Constable and Co. Ltd. 1933. Pp. 519. 22*s.* 6*d.*

THIS book embraces the surgery of all the thoracic organs. The principles are sound and well expressed, and correct emphasis is laid on the important points. The opening chapter on anatomy and physiology is one of the best, and particularly interesting sections are to be found on lung movement and the mechanism of open pneumothorax. The general remarks on X ray diagnosis are excellent, and we are glad to see that the author stresses the value of lateral X ray views in cases of lung abscess. In the description of bronchoscopy, which is mentioned under operative technique instead of under diagnosis, where it properly belongs, Mr. Sellors says that extreme extension of the neck is necessary; most authorities emphasise the importance of flexing the cervical spine. The chapter on operative technique is sound as far as it goes, but here, and elsewhere in the book, there are not sufficient details and too many alternatives are mentioned without any guiding remarks to assist the choice. In the section on acute empyema the author distinguishes the synpneumonic from the metapneumonic empyemas, but, rather surprisingly, he insists on closed drainage for the latter group; he goes so far as to say "open drainage is only permissible when the mediastinum is fixed, and, though commonly practised, has nothing to justify its performance in the present era of surgery." This is not the view generally held. In this same chapter Mr. Sellors explains clearly how and when to put the tube in, but he fails to mention a point of almost equal importance—namely, when to remove it. In the chapter on pulmonary tuberculosis the reasons and indications for surgery are well stated. The book also contains short chapters on the surgery of the diaphragm, heart and pericardium, œsophagus, and sympathetic system (angina pectoris and asthma). At the end there is a helpful bibliography arranged under subjects.

The impression given by the book is that the expert will find therein little to supplement the judgment he has himself been able to formulate from his practical experience. But if the detail is insufficient to be of much guidance to the operating surgeon the principles enunciated are sound, and anyone reading it will come away with a clear understanding of essentials. The book is admirably suitable for the needs of those who want an introduction to what has become a very big subject.

The Physiological Effects of Radiant Energy

BY HENRY LAURENS, Ph.D., Professor of Physiology in the Tulane University School of Medicine, New Orleans, Louisiana. An American Chemical Society Monograph. New York: The Chemical Catalog Co. Inc. 1933. Pp. 610. $6.

IT is difficult to understand for whom a book such as this is intended. It deals at great length with the scientific study of the effects of radiant energy, quoting innumerable authorities, and on the other hand makes many statements regarding the treatment of disease with ultra-violet-radiation which experienced clinicians would hesitate to accept. The chapter dealing with the physics of radiant energy contains much that is good, but the style in which it is written, with continual references to the authorities quoted, makes it difficult to read. The discussion of the effects of radiant energy on metabolism covers 224 pages and the bibliography 17 pages. Much of it refers to careful experimental studies, but more discrimination in the selection of the work described, and a statement of the facts which have actually been proved, would have made the book more interesting and more readable. That much labour was involved in the compilation of such a volume can well be believed; and anyone engaged on work along similar lines would find here useful references to the many papers which have appeared in foreign literature. But except as a guide to the ground already covered it is hard to believe that anyone would willingly wade through this strange mixture of spectrophotometry, biochemistry, and popular medicine.

Holt's Diseases of Infancy and Childhood

A Text-book for the Use of Students and Practitioners. By the late L. EMMETT HOLT, M.D., and JOHN HOWLAND, M.D. Tenth edition. Revised by L. EMMETT HOLT, Jr., M.D., Associate Professor of Pediatrics, Johns Hopkins University; and RUSTIN MCINTOSH, M.D., Carpentier Professor of Diseases of Children, Columbia University, and Physician-in-Chief to the Babies' Hospital, New York City. London: D. Appleton and Co. 1933. Pp. 1240. 42*s*.

BEFORE the appearance of the ninth edition of Holt and Howland in 1926, both the authors were dead. Dr. Howland had, however, before his death rewritten and rearranged much of the work, and the book was up to date, compact, and had the value which attaches to a record of personal experience and observation. Much of this has been lost in the present edition, which has been greatly added to by contributors who had no hand in the original. The book has certainly gained a more modern outlook but has lost much in personal approach.

It remains, however, a valuable and comprehensive text-book. The rewriting of chapters on diseases of the blood, nutritional disorders, allergy, and deficiency diseases (the word appears in this edition for the first time) has been necessitated by the great advances in medical knowledge of these subjects during the last five years. New chapters have been added on immunology, burns, dwarfism, Schilder's disease, and many other subjects. All this has caused an increase of bulk of 220 pages, which is intensified by the heavily loaded paper upon which the book is printed. There is however a great improvement in the reproduction of the many excellent illustrations. The book is a good example of American thoroughness, and as a work of reference will continue to be widely used.

Journal of Pathology and Bacteriology

THE July number (Vol. XXXVII., No. 1) contains the following papers: Some Effects of Artificial Pneumothorax on the Circulation, by R. Hilton (London). The amount of air breathed is at first increased, afterwards diminished.—The Filtration of Spirochætes through Graded Collodion Membranes, by E. Hindle and W. J. Elford (London). The sizes deduced from filtration correspond fairly well with those obtained by dark-ground photography; no evidence was obtained of any specially minute phase.—The Active Immunisation of Pheasants against Fowl Tumours, by C. H. Andrewes (London). The Rous sarcoma can be propagated in series in pheasants; birds resisting repeated inoculation with tumours to which they are relatively refractory become immune to the Rous tumour.—Further Serological Studies on Fowl Tumour Viruses, by C. H. Andrewes (London). A very technical paper from which it emerges that all fowl tumours have some degree of antigenic relationship.—Rats as Carriers of *Streptobacillus moniliformis*, by Winifred I. Strangeways (London). This microbe causes a disease in mice, and has once been identified in a human epidemic; a proportion of wild and tame rats harbour it in their noses without suffering from any illness.—Multiple Toxins Produced by Some Organisms of the *Cl. welchii* Group, by A. T. Glenny, Mollie Barr, Mona Llewellyn-Jones, T. Dalling, and Helen E. Ross (Beckenham). An interesting contribution towards unravelling the relationships of the organisms which cause gas gangrene, lamb dysentery, and sheep diseases. Each variety produces several distinct toxins.—The Cultivation of the Virus of Rift Valley Fever, by R. D. Mackenzie (London). Successfully carried on in mashed chicken embryo in Tyrode's solution.—The Effect of Experimental Portal Congestion on the Absorption and Excretion of Water, by J. McMichael and F. H. Smirk (London). Obstruction of the portal vein delays the absorption of water from the bowel.—The Formation of Green Pigment from Hæmoglobin by the Pneumococcus, by P. D'A. Hart and A. B. Anderson (London). The green colour is not an optical illusion; it is formed by a defined enzyme system but its nature is unknown; it does not correspond with any known derivative of hæmoglobin.—A Virus Disease of the Canary of the Fowl-pox Group, by F. M. Burnet and J. E. Barnard (London). The virus is fatally pathogenic to sparrows and canaries, mildly to pigeons, hardly at all to fowls. It causes a histiocyte reaction with epithelial proliferation and inclusion bodies, and can be well grown in the chorio-allantoic membrane. Filtration and microscopy agree in making the diameter of the particles about 0·15 μ.—Congenital Cystic Disease of the Lungs Associated with Giant-cell Hyperplasia of the Lymph-glands, by D. H. Collins (Liverpool). In a male aged 15 months.—Observations on Striated Muscle, by W. G. Millar (Edinburgh). The finer details of striped muscle are well shown by Kull's *mitochondria* method, and post-mortem and pathological changes may be conveniently studied.—Cellular Response of Vitreous Humour to Injections of Bacterial Blood and Vital Dyes, by W. A. Gray (London). A polynuclear is followed by a macrophage reaction; the cells are mainly derived from the wound of entry, but they come later also from the optic disc and the ciliary body.—The Application of Vital Staining to the Histogenesis of the Rous Sarcoma, by A. Haddow (Edinburgh). The tumours produced by the injection of cell-free filtrates come from the histiocytes of the recipient.—Malignant Leiomyoma of Kidney, by W. E. Cooke (Wigan). Unique.—A Filter-passing Micro-organism Cultivated from Epidemic Influenza, by I. McIntosh (London). An opacity of anaerobic broth with certain samples of horse serum has been carried on for many generations from the lungs of fatal cases of influenza. It is stable and actually resists boiling for a few minutes.—Horgan and Marshall's Blood Tellurite Medium for Isolation of *C. diphtheriæ*, by R. A. Q. O'Meara and H. J. Parish (Beckenham). A useful selective medium.—Concentration of Hæmagglutinating Type Sera, by R. A. Q. O'Meara (Beckenham). Freeze, allow to thaw, and take the lowest layer.—Primary Carcinoma of the Gall-bladder with Unusual Metastases, by D. F. Cappell and G. R. Tudhope (Dundee). The widespread glandular growths led to a diagnosis of lymphadenoma.

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THE LANCET

LONDON: SATURDAY, JULY 29, 1933

DROPPING OUT OF MEDICAL BENEFIT

LAST week in a memorable speech at the twenty-first birthday celebration of national health insurance Mr. LLOYD GEORGE said he rejoiced to see the tree which he had planted in 1912 grow and bear abundant fruit in the improvement of the health of the community; and he made the forecast that at the Representative Meeting of the B.M.A. there was one resolution which would not be carried, which would not even be moved—namely, a resolution demanding the repeal of the medical benefit of the National Health Insurance Act. He was more than right. The subject which took deepest hold of the meeting was the feeling that, in the near future, a substantial proportion of those who now enjoy it are faced with the prospect of losing this benefit. As a result of the National Health Insurance and Contributory Pensions Act, 1932, something like 100,000 people, it is estimated, will be thrown out of insurance on Dec. 31st of this year. Sir HENRY BRACKENBURY, in the debate reported on another page, suggested that this estimate probably falls far short of the true figure. The situation which will arise when the Act comes into force is causing anxiety for several reasons. In the first place these patients will no longer be entitled to care by the doctor of their choice but must be attended by the public assistance medical officer. He will probably share their reluctance, for no medical officer wants to be overwhelmed with patients who are strangers to him and whose care has long been the concern of other practitioners. As Dr. OSCAR WILLIAMS pointed out, he cannot be expected to feel the same interest in these newcomers as he does in patients whom he has been attending over a long period. Moreover, it means that patients who in reasonable times are workers will be thrown into the company, and share the status, of those who have been receiving relief for years, and whose standards of respect may have been lowered thereby.

What to do in this dilemma was keenly discussed. A rupture in the relations of doctor and patient, all agreed, would be a disaster. Some of the suggestions made were clearly impracticable—for example, the proposal that local authorities should continue to pay insurance subscriptions in order to maintain these patients in benefit. This, it was pointed out immediately, would create a privileged class of persons under public assistance, a situation which could not be permitted. There is only one procedure, in Sir HENRY BRACKENBURY's opinion, under which the relations between doctor and patient can be preserved, and that is the adoption by local authorities of the open choice method in appointing district medical officers. Under this system, all local practitioners in an area who are willing to accept service with the authorities may be appointed and employed on a basis of remuneration either for each item of service or by a capitation fee. This plan has been put into practice already in Fife and is working successfully there, but as one of the speakers at the meeting remarked, Fife is only a small part of Scotland, and it remains to be seen whether the system would work on a larger scale. It is evident, if this plan is adopted, that the interests of district medical officers already holding appointments must be protected—a point which the Council of the Association noted in their annual report, but without suggesting how it should be done.

The position fully justifies a trenchant question put recently by Sir HENRY at the section of preventive medicine of the congress of the Royal Sanitary Institute: whether, in fact, national health insurance is not beginning to fail of its national purpose? His own reply to the question of large groups dropping out of benefit as a result of economic stress was this: An effort must be set going at once to make the provision by some other method more all-embracing, or it must be arranged that these persons shall be retained within the scheme, so far as medical benefit is concerned, by securing a properly calculated amount by way of premiums paid on their behalf. We believe that to do this should not be beyond the wit of those who have drawn up the medical benefit code. It must be done if health insurance is not to fail in some degree of its national purpose.

TUBERCULOUS BACILLÆMIA

THE study of tuberculous bacillæmia has been one long story of alternating success and disillusionment. The bacteriologist's nightmare is suddenly to realise that he has failed to make the crucial control experiment, and that like those foolish men in Robert Boyle's "Sceptical Chymist" in searching after truth, he has brought home from his travels not only precious gold and silver "but apes and peacocks too." In a memorandum issued this week by the Medical Research Council[1] Prof. G. S. WILSON has traced the history of tuberculous bacillæmia from the earliest work of WEICHSELBAUM in 1884 to the latest records of Prof. E. LÖWENSTEIN, of Vienna, and those who have essayed to follow him. The early experiments were all made by various methods of direct microscopic examination of films stained for the tubercle bacillus, and, as Prof. WILSON points out, the degree of discordance was such that it is impossible now to accept the findings at their face value—indeed, at any value at all. Some workers found large numbers of bacilli in the majority of their cases; others, like ROTHACKER and CHARON, encountered bacilli so infrequently that they actually spent 15 hours examining each preparation. Artefacts are legion—fuchsin or hæmin crystals, fibrin or disintegrated leucocytes, not to mention scratches in old slides. But still more disconcerting are the saprophytic acid-fast bacilli, found both in old distilled and in tap water, which gain access to laboratory reagents. Dr. Herta Schwabacher, who published two years ago a case which at the time appeared to accord with Löwenstein's experience,[2] has recently demonstrated the constant presence of these bacilli in material from cold-water taps, frequently in such numbers that a single loopful of water spread on an albuminised slide showed several groups of them, and Eichbaum found them particularly abundant in the hemp leather and rubber washers on water taps. Fortunately hot-water taps appear to be clear. Prof. Wilson points out that the records even of guinea-pig inoculation tests are not always reliable, since they may be vitiated by faulty methods of examination. Many workers seem quite incapable of distinguishing between true inoculation tuberculosis and the numerous naturally acquired diseases to which caged laboratory animals are liable, and this incapacity confuses the issue not only in the study of tuberculous bacillæmia but in other instances, such as the so-called filtrable virus of tuberculosis. Critical examination of large numbers of published records leads Prof. Wilson to conclude that genuine tubercle bacilli have probably been demonstrated by the animal inoculation method in the blood in about 4·9 per cent. of patients with severe pulmonary tuberculosis, in 36·4 per cent. with miliary or meningeal tuberculosis, and in about 2·7 per cent. with non-pulmonary tuberculosis.

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[1] Medical Research Council, Special Report Series No. 182. Tuberculous Bacillæmia. By G. S. Wilson, with appendices and notes by Herta Schwabacher, C. C. Okell, and E. A. Wood. London: H.M. Stationery Office. 1933. Pp. 145. 2s. 6d.

With the introduction of methods of growth on culture media of tubercle bacilli from human blood a new era of investigation began. Before the work of Löwenstein, to which we have drawn attention on various occasions in our columns, some 500 odd cases had been examined by cultivation methods with only six recorded positives. The Löwenstein technique originated in 1905, but only within the last two or three years elaborated for the diagnosis of tuberculosis in man, seemed to have changed the picture completely. An exact account of the results obtained in Prof. Löwenstein's laboratory in Vienna is difficult to obtain owing to the multiplicity and reduplication of the publications; moreover, Prof. Löwenstein has been generous in his hospitality to visiting research workers who have often published results rather hastily. Hence we have a large "corpus" of published work which, as tabulated in the monograph, extends over nearly three pages, and totals over 4000 cases. Apart from the high percentage of positive findings in known cases of tuberculosis the results of the Löwenstein school are noteworthy for two outstanding facts: (1) the completely negative results in 3000 control cases, and (2) the numerous positives in diseases hitherto regarded as not of tuberculous origin. Though, as has been said, the assessment of the figures is difficult, it is estimated that tubercle bacilli have been isolated from the blood stream during life in about 40 per cent. of patients with pulmonary tuberculosis in all stages of the disease, in 80–100 per cent. with miliary, meningeal, or intestinal tuberculosis, and in 40–60 per cent. with laryngeal, renal, skin, or surgical tuberculosis; whilst a tuberculous bacillæmia has been found in 67 per cent. of patients with articular rheumatism and polyarthritis, in about 50 per cent. with diseases of the nervous system (multiple sclerosis, and so forth), and in a number of cases of miscellaneous diseases such as endocarditis and tenosynovitis.

These claims have naturally led to large numbers of control investigations on the part of other workers in different parts of the world. Prof. Wilson summarises them in two groups, one containing records of positive results in however small a proportion, the other comprising entirely negative results. The contrast between the frequency of positive results reported from Löwenstein's laboratory in Vienna and those reported from other sources is striking, though wide differences in technique make it difficult to express this contrast statistically. Amongst many other factors the interpretation of the microscopic and macroscopic positive cultures are not the least of the obstacles to right assessment. No suggestion is made that Löwenstein has not from time to time cultivated genuine tubercle bacilli from the blood of human patients. Furthermore, the laboratory workers who have used his medium almost invariably speak well of it, and a few think it may even replace the old Dorset egg medium. The crux of the matter rather lies in the explanation of the presence of the acid-fast bacillus. Whence has it come? Is it a true tubercle bacillus in every case? On these points workers have been satisfied with far too lax a criterion of identification, and as the memorandum conclusively shows, many saprophytic acid-fast bacilli are masquerading about the world as genuine tubercle bacilli—probably a far larger number than the uninitiated realise. The Ziehl-Neelsen technique is absurdly easy to apply, and it has been too readily taken for granted that it is fool proof. Prof. Wilson adds to his comprehensive memorandum an addendum which is full of constructive suggestions on the avoidance of errors. If all reasonable precautions are followed, there is no reason why the new knowledge contributed by Löwenstein and many other bacteriologists should be misinterpreted, any more than improvements in motor construction should make cars more difficult to drive.

THE THERAPEUTICS OF MALARIA

The report[1] just issued by the Malaria Commission of the League of Nations was written by Lieut.-Colonel S. P. James, and adopted, after discussion and amendment, by a committee consisting of C. D. de Langen, P. Mühlens, P. Nocht, G. Pittaluga, and Edmond Sergent. It has, then, behind it a weight of experience regarding treatment which is probably unequalled in any other publication of the kind. It is a closely reasoned piece of writing, which shows strikingly how the work rendered possible by the discovery of the curative effect of malaria on general paralysis—work carried out largely in this country and under Colonel JAMES's inspiration—has turned a stagnation of malarial knowledge into a rapid current. These last few years have made evident how dissimilar is the virulence displayed by different races of the same species of malaria parasite. For instance, the virulence of the Madagascar strain of benign tertian parasite—the one in general use in mental hospitals in England since 1925—is such that the closest medical attention is needed during illness, for if this is not afforded the strain has shown a mortality-rate of between 10 and 14 per cent.; and there are also certain strains of malignant tertian parasite which are much more dangerous than others. Moreover, the various strains do not react alike to drugs, and this makes it very difficult to compare the records of observers in different parts of the world.

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[2] The Lancet, 1931, i., 1130.

[1] Quart. Bull. Health Organisation League of Nations, June, 1933, p. 181.

Originally the Commission embarked on an essentially economic problem—the attempt to reduce the price of quinine; but their aims have since extended themselves widely, and the problems which they now consider in this their third general report are various. There is first the problem of true causal prophylaxis—the search for a drug which in non-toxic doses will destroy injected sporozoits. For this purpose quinine has proved valueless. Plasmoquine protects, apparently with certainty, in daily doses of 0·08 g. for three days and thereafter of 0·06 g., but at this dosage it is too toxic for general use for a period longer than a week in all. We possess then no usable causal prophylactic drug. The alternative, clinical prophylaxis, is in effect the curing of slight clinical attacks of fever; it merely keeps the parasites within certain bounds, and it is better effected by a daily dose of 0·3 g. of quinine than by a weekly one of 1·0 g. A dose of 0·1 g. of atebrin has proved yet more satisfactory in short experiments, but whether it can be tolerated for a long time is unknown, and it has the unpleasant effect of turning the skin temporarily yellow. In Salonica clinical prophylaxis kept the allied armies in being, the German forces serving as unwitting controls. In treatment, the point on which the report repeatedly insists is that the essential factor is the host's own natural defensive mechanism, and that while this may be helped by specific drugs it may equally be impaired or even suppressed by giving these in too large doses or for too long a time. Falling in with this, it is the Commission's deliberately expressed opinion that it is seldom or never in the best interests of patients to attempt to combine treatment of an acute attack with prevention of relapse. For the former, quinine and atebrin are advised, it being noted that the toxic effects of plasmoquine seem to be enhanced by fever and anæmia. After the primary attack has been checked the best practice, it is held, is to wait for a recrudescence and treat it as the primary attack was treated, and, if others occur, to begin to use the specific remedy at a later period and to use it more sparingly than at first. Regarding gametocyte therapy—the use, that is, of a drug to destroy or emasculate gametocytes before they are taken up by anopheles—it is emphasised that in the great majority of cases these bodies are not present in the peripheral blood. They seem to be attributes of the newly infected case, whether infant or newcomer in an endemic area; in deliberate infections they are found in numbers in primary attacks and early recrudescences, and thereafter diminish progressively with each relapse. Since they are probably formed from schizonts, their preventive therapy consists in the destruction of these by drug treatment in primary and early attacks. Nevertheless, there is no drug which will entirely prevent their appearance, though plasmoquine in a dose of 0·04 g. or perhaps of 0·02 g. will emasculate circulating crescents for three days. The Commission feel that this subject has received less study than it deserves. They give valuable information on the results of investigation in the past, and equally valuable indications as to the lines which future, much needed, study should take.

From all this it is very clear how individual a matter the treatment of malaria should be, and how great are the difficulties of best dealing with the infection in the mass. Indeed, the Commission look forward to a time when blind mass treatments—herd treatments as they are probably better called—will be replaced by a rational scheme based on intensive clinical and parasitological studies, conducted continuously for a long period on selected individuals at particular age periods.

THE SURGERY OF THE BLADDER NECK

AT the International Congress of Urology, held last week, the discussion that provoked most difference of opinion was that on surgery of the bladder neck.[1] It was obvious to those who listened that urologists have not yet reached unanimity as to the value of perurethral operations in the treatment of obstruction of the bladder neck. Whilst Prof. MARION recognised that perurethral surgery has a limited utility in the relief of such obstruction, certain representatives of the American school of urology were prepared to employ it not only in cases of dysectasia without enlargement of the prostate but also in cases in which the volume of the prostate was considerably increased. Prof. HUGH CABOT went so far as to state that the day had almost arrived when only exceptional cases of prostatic obstruction would be treated by enucleation. American opinion would appear, therefore, to have swung very far in the direction of regarding perurethral resection as the ideal form of treatment for enlargement. As an indication of the change that has taken place in America may be mentioned the statistics from the Mayo Clinic, cited by Cabot. In the year 1928 something less than 20 per cent. of cases of enlargement of the prostate were treated by perurethral methods; two years later 84 per cent. of patients were submitted to perurethral resection, and in 1932 as many as 88 per cent. Dr. W. F. Braasch, from the same clinic, gave it as his opinion that within a short space of time perurethral methods will have been brought to such a state of perfection that it will only be necessary to subject some 5 per cent. of cases to the older operation of enucleation. Whilst these views cannot be taken as typical of those of American urologists in general, they at any rate indicate that our colleagues across the Atlantic have outlived the hostility that for long existed towards the perurethral method of treatment. Ten years ago Dr. J. S. Caulk, of Louisville, was treating patients by means of his cautery punch in lonely splendour. He was regarded by his colleagues as an enthusiast who had lost his sense of proportion. Five or six years ago some of the urologists who are now whole-hearted supporters of perurethral surgery returned from a visit to Caulk's clinic kindly tolerant but unimpressed by his pioneer work. At the present time Caulk is evidently regarded by American urologists as the man who has laid the foundations of the newer methods of treatment.

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[1] See THE LANCET, July 22nd, p. 216.

In this country opinion has swung less to either extreme; it has never in the past shut its eyes to the possibility of relieving certain cases of obstruction by means of diathermy, and does not in the present hail it as the supplanter of the older methods. Such exponents of perurethral methods as Mr. J. Everidge, Mr. Kenneth Walker, Mr. Ogier Ward, and Mr. T. J. Millin, are agreed[2] that perurethral resection has a definite place in prostatic surgery, but it would seem that none of them are treating more than some 20 per cent. of their cases by such methods. Whether this proportion will be increased as the fashioning of perurethral instruments achieves greater perfection remains to be seen. Although great progress has been made in improving the efficiency of the tools used in the operation, it must not be forgotten that resection of the prostate through the urethra is a difficult procedure which can never be regarded as belonging to the realm of minor surgery. As much judgment and skill are required in dealing with the prostate through the urethra as in removing it suprapubically. Amongst other difficulties that are to be met with is that of selecting cases suitable for treatment. Even a skilled cystoscopist may fall into error in estimating the size of a prostate, or in deciding how much tissue it will be necessary to remove in order to restore to the patient normal micturition. In this connexion Mr. Ogier Ward's modification of the McCarthy transurethral electrotome, by means of which the size of the prostate can actually be measured in centimetres with a fair degree of accuracy, should be of great value.

The time for passing a final judgment on the scope of perurethral methods in the treatment of enlarged prostate has not yet come. Before we can do so we must be in possession of details of a very large series of cases treated by such means. These must necessarily include data as to age, nature of the symptoms, length of their duration, quantity of residual urine present, cysto-urethroscopic condition, degree of local infection, renal function, blood pressure, and the state of the pulmonary and vascular systems. We have need of statistical data rather than of vague generalities. When these data have been provided and carefully studied we shall be able to arrive at a well-founded opinion of the value of perurethral operations and of the permanency of the results that they yield.

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[2] See The Lancet, 1933, i., 1180.

ANNOTATIONS

THE WORK OF THE MINISTRY OF HEALTH

The fourteenth annual report of the Ministry of Health, which has now appeared,[1] provides an informative survey of public health work, dealing in particular with housing and town planning, local government and local finance, and National Health Insurance. The report is a broad record of the more important business transacted by the Ministry during the year and does not attempt to cover matters of routine or detail, while the annual report of the Chief Medical Officer of the Ministry will as usual be published separately. Sir Hilton Young, in a brief preface, points out that the National Health Insurance and Contributory Pensions Act, 1932, which received Royal Assent in July of that year and came into operation on Jan. 1st last, has effected certain changes devised to preserve the financial stability of the whole scheme of National Health Insurance. Thus further provision has been made for the continuance in insurance of those suffering from prolonged unemployment who would otherwise have been no longer insured, when the prolongation of the Insurance Act, 1931, ceased to function at the end of 1932. Under the new Act unemployed insured persons, who have exhausted their ordinary rights, are kept in full insurance for pensions up to the end of 1935, having to prove year by year that they are unemployed and are seeking work; in addition they are provided with medical benefit during this current year, and on resuming employment can requalify for benefits on favourable terms.

The report is both voluminous and lucid on the subject of economy in the public health services, showing the policy of the Department during the year to be that of a steady attention to economy, avoiding unnecessary expenditure and overlapping services, but at the same time aiming steadily at the progressive development of those public health services which are of urgent importance. The subject of housing and town planning is very fully dealt with, as would be expected having regard to the special attention which was devoted in the year under review to the problems of slum clearance and re-housing The great amount of house-building which took place immediately after the war, and which, at varying rates has since been continued, is now generally seen to have been disorderly, the particular classes of houses being unevenly represented so that the needs of the poorer members of the community remain unsatisfied. The local authorities have been accordingly urged to concentrate on the provision of houses to be let at the lowest possible rates, while during the year under review conditions arose which made it possible to contemplate the bringing back to private enterprise the business of building houses for the working classes. A Departmental Committee on housing was set up, with Lord Moyne as chairman, the report of which body is awaited with interest, for though the terms of reference do not concern the question of lower rents, the possible influence of public utility societies may lead to fruitful counsel.

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[1] Fourteenth Annual Report of the Ministry of Health, 1932–33. H.M. Stationery Office. 5s. net.

The sixth section of the report deals with the constitution and activities of the Welsh Board of Health, under whose administration a system of survey of the counties and county boroughs by the medical officer of the Department has been instituted. The surveys have involved the examination of public health services in some detail, but do not disclose that there is any one service which calls for special criticism. The general message, however, emerges that there is emphatic need in rural Wales for a further enlightenment of the inhabitants in matters pertaining to personal and domestic hygiene and diet. A timely recommendation further is that expectant mothers in remote country districts should come into the towns for confinement.

AORTIC VALVULAR DISEASE

THE change which has taken place in the attitude of cardiologists towards valvular disease is well illustrated in a recent paper on disease of the aortic valves by Dr. Maurice Campbell and Dr. J. H. Shackle.[1] Aortic valvular lesions may be due to rheumatism, syphilis, or atheroma; but, although the mechanical results of the lesion may be similar, the natural history of these three types of aortic disease is very different. Cardiac rheumatism is essentially a disease of young people; it is a disease which attacks the mitral valve more often than the aortic, and in two out of every three cases of rheumatic aortic incompetence in this series mitral stenosis was also present. Syphilis and atheroma, on the other hand, never attack the mitral valve. They are diseases of later life, syphilitic aortitis being rare before the age of 40, and atheroma before the age of 50. Fifty seems to mark the parting of the ways. Campbell and Shackle found that whereas 90 per cent. of their rheumatic cases were under that age, 90 per cent. of their atheromatous cases were over it. Again, whereas before the age of 50 rheumatism is a far commoner cause than syphilis of aortic valvular disease, after 50 twice as many cases were due to syphilis as rheumatism. This difference in age-incidence is associated with a difference in prognosis. The writers of this paper consider that the average expectation of life in the rheumatic type is over 20 years; a large proportion of the syphilitic patients die within two years of the appearance of symptoms.

Tables of percentages are apt to be dull reading, but Campbell and Shackle make some interesting comparisons, in round figures, between the various groups of aortic patients and the various lesions which they exhibit. For instance, rheumatic aortic disease uncomplicated by mitral stenosis was found to be twice as common in boys as in girls, despite the fact that among the female patients four-fifths were rheumatic, as against three-fifths of the males. Taking the series as a whole, Campbell and Shackle found that rheumatism was about four times commoner than syphilis, and ten times commoner than atheroma, as the causal factor. Angina was often the most prominent symptom in patients of the non-rheumatic group, in which it was present in 40 per cent.; on the other hand it was noted in only 5 per cent. of the rheumatic cases. The opposite is true of auricular fibrillation, which was found almost exclusively in the rheumatic group, and in them was much commoner in patients in whom the mitral valve also was affected.

Investigations such as this show that if we are to get a true picture of disease we must think in terms of ætiology rather than of structural lesions. Aortic regurgitation is to be regarded not as a diagnosis, but as a signpost pointing to cardiac rheumatism, cardio-aortic syphilis, or atheroma, as the case may be.

SIDELIGHTS ON FAMILY INSURANCE

TWO points of human interest are to be found in the otherwise rather technical pages of the new blue-book (Cmd. 4376, 2s.) on industrial assurance and life assurance on children under 10. The first is the fact that this class of insurance encourages what many critics regard as the economic waste of lavish expenditure in connexion with death in working-class homes. The scope of policies taken out by parents and other relatives on the lives of children is restricted by statute to the payment of "funeral expenses" and the amounts payable are limited to a scale prescribed according to the age of the child. Policies taken out by relatives who have a statutory right to do so on the lives of parents or on the life of a brother and sister are similarly restricted in scope. The committee's report, which forms the blue-book, emphasises the fact that much of this business of assuring the lives of relatives is conducted without the knowledge of the persons whose lives are assured. Insurance agents object strongly to the official proposal that the person whose life is proposed for assurance should be a consenting party. "I would like to insure my father or mother," says a son or daughter, "but I do not want them to know." One agent told the committee that as much as 90 per cent. of the business would be lost if the written consent of the person to be assured were made necessary. The insurance offices insist that an agent shall "see" the person in question; the agent pays a tactful visit to the house without disclosing his purpose; having achieved his "view" and having found the object apparently in good health, the agent goes off and fixes up the policy. The committee, among other recommendations, advises that a policy on the life of another person should not (except where parents insure children) be effected without the consent of that person; the committee recommends that signed consent should be required before issue of the policy.

A second point is the curious evidence that family insurance of the kind described above constitutes in some cases a not unattractive form of speculative investment. There is nothing to suggest any sinister intention on the investor's part, but the system is obviously one which requires vigilance. The committee cites an instance brought to light in a local bankruptcy court. An insolvent tradesman was found to be paying 9s. a week in premiums on 18 industrial policies on the lives of himself and almost all the members of his family. Asked by the official receiver why he wanted to insure his grandfather, the insolvent answered that he thought it would "come in handy if anything happened."

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[1] Guy's Hosp. Rep., 1933, lxxxiii., 168.

Asked further whether the assured relatives agreed with him in hoping that the insurance money would "come in handy," he replied. "They didn't know about it; they hadn't to pass the doctors because the amounts weren't big enough." The committee finds itself unable to resist the conclusion that this humble tradesman, in thus burdening himself with premium payments of 9*s.* a week, was deliberately gambling on human life. Some of the policies were probably illegal as being effected on persons outside the permitted list of relations, and it is significant that those persons "didn't know about it," and "didn't have to pass the doctors."

ABDOMINAL INCISIONS

THE nature and lines of incision through the abdominal wall are many and various, depending, as they do, not only on the site of the operation but on the taste of the operator; in all cases, however, there is the natural desire to leave the wall as little damaged as possible. Dr. Francis Davies and Mr. C. P. G. Wakeley,[1] writing from the anatomical side, draw attention to the advantages of transverse incisions. The main anatomical points on which they insist are first, the fact that the action of the muscular wall as a whole is to produce a transverse pull; and secondly, that the direction and disposition of the nerves in the wall makes them less liable to effective injury in a transverse cut, especially in the upper abdomen. The descriptive distribution of nerves in the body wall has been altered considerably by anatomists during the last decade, but the general lines of direction remain, and there seems to be no question that the value of the transverse incision is well based on this ground, for it is likely that post-operative herniæ are consequent on injuries of nerves more than on other lesions in the wall. Longitudinal cuts, when lateral to the paramedian line, divide nerves of necessity and are also subject to the transverse pull of the wall. Davies and Wakeley recommend a paramedian incision, with splitting of the rectus, for sigmoid colostomy; here the overlap in innervation of the muscle obviates subsequent weakness in sphincteric function. Definite recognition of the position of the nerves in the wall of the belly is clearly important when planning extensive abdominal incisions with an eye to subsequent function.

THE SECRETARY TO THE MEDICAL RESEARCH COUNCIL

Prof. Edward Mellanby, F.R.S., who has been a member of the Medical Research Council since 1931, has been appointed to succeed the late Sir Walter Fletcher as its secretary. Prof. Mellanby was educated at Barnard Castle school and Cambridge University as a scholar of Emmanuel College. From Cambridge he went to St. Thomas's Hospital, where he gained many distinctions. He was appointed demonstrator of physiology in 1909, resigning this post on his election in 1910 to one of the first Beit Fellowships. In 1913 he was appointed to a chair of physiology in the University of London (King's College for Women), and since 1920 has held the chair of pharmacology at Sheffield University. Prof. Mellanby's experimental work on rickets, especially on the relative importance of diet and confinement in the production of rickets in puppies, excited widespread interest from its first publication in book form as No. 61 of the special report series of the Council in 1921. He has since played a large part in the discoveries which have not only harmonised the two rival theories of the causation of rickets, but have enabled a rational plan of prevention and treatment to be built up. Last year he was awarded the Royal medal of the Royal Society for this work. He has also done original research in many other fields, among others upon the properties of alcohol under the ægis of the Medical Research Council. The trustees of the late James Maxwell Grant Prophit have just granted him, on the recommendation of the Royal College of Physicians of London, a studentship in cancer research, while he was recently designated Sheild professor of pharmacology at Cambridge, an appointment which may, at the discretion of the trustees, terminate with his tenure. The Royal College of Physicians of London elected him Oliver Sharpey lecturer in 1922 and Croonian lecturer in 1933. Prof. Mellanby assumes full duty as secretary to the Medical Research Council with the commencement of next year.

THE KITCHENER SCHOOL OF MEDICINE, KHARTOUM

IN 1924 the Sudan Government opened a medical school with the object of building up a corps of Sudanese doctors who would be specially trained in the peculiar requirements of the country and gradually replace the Syrian and other doctors recruited from abroad so that, except for a few British specialists, the whole Sudan Medical Service would be native. Ten students were therefore selected from graduates of the Gordon College and were given a four-years' course of sound scientific medical training, shorn as much as possible of non-essentials. This daring experiment has attracted severe criticism sometimes amounting to ridicule, but there seems to be every prospect that the critics will have to modify their opinions. The fourth report of the school, covering the years 1931–32, shows that in every year, except 1926, 8 to 10 new students were admitted; of a total of 84 students, 34 have graduated, 35 are still under training as medical students or as sanitary officers—an alternative career offered to students who are not quite up to the medical standard—and 15 were advised to retire as unsuitable. Of the 34 graduates, the nine who passed at the beginning of this year have, as usual, been sent to the larger hospitals for a post-graduate year in house posts. Of the remaining 25, four have shown outstanding character and ability and are medical officers in charge of four of the larger hospitals. Eighteen are said to be thoroughly competent and reliable in posts of unsupervised responsibility, and some of them may well take their places with the first four. The remaining three are competent under supervision and will, it is thought, probably develop enough responsibility to act alone. Since these native doctors need less leave than Syrians and can take it at any time, they saved the Sudan budget a sum of £E14,000 in 1933 alone.

Candidates spend a preliminary two years studying biology, chemistry, and physics at the Gordon College and another year at the medical school. In their second year at the school they learn anatomy and physiology, the course being strictly limited to knowledge which will be of practical use. The third and fourth years are given to professional study in hospital, and the post-graduate year is said to be equivalent to the fifth year of an English course. The final examinations are always supervised by an assessor unconnected with the Sudan. Mr. Warren Low, who acted in this capacity last year, states that the complete training is equal to a five-years' curriculum in England and that at least four of the graduates would have satisfied the examiners at a qualifying examination in this country. These results, he says, can be accounted for only on the assumption that the eight students have been personally and individually coached by teachers of the greatest enthusiasm and devotion. They show what can be done by careful selection, intensive individual training and a rigid adherence to practical needs. In January the school lost a great friend and benefactor in the death of Ahmed Bey Hashim El Baghdadi. Ahmed Bey was a Persian who came to Khartoum as a poor man just after the conquest; he became a successful merchant and when the school was founded he put all his money in trust for it, keeping only a life-interest, of which he gave £300 a year for the maintenance of students.

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[1] Australian and New Zealand Jour. Surg., 1933, vii., 381.

VISCOUNT BURNHAM

By the sudden death of Lord Burnham the country has lost a great public servant, whose activities formed part of our social history. His special claim to the gratitude of the medical profession is the interest that he manifested in Epsom College, of which establishment he had recently become president, in succession to Lord Rosebery. His sudden death is a real loss to the College, for his interest in its affairs had become great and personal. At the funeral, which took place at Beaconsfield on Monday, the Council of Epsom College was represented by Mr. Hollis Walker, K.C., while at the memorial service at St. Margaret's, Westminster, on the following day, Mr. Fleuret represented the Council, the head-master and certain masters and senior boys being present.

The arrangements in connexion with Founder's Day will remain unaltered.

MILK-BORNE DISEASE

Exact data on the frequency of milk-borne disease are not easy to obtain. Tuberculosis of bovine origin and undulant fever occur sporadically, and their incidence cannot be ascertained without special inquiry. Individual cases and small outbreaks of scarlet fever, septic sore-throat, diphtheria, and enteric fever due to infection by milk usually attract little attention, and the real source of infection may not even be suspected. It is, in fact, only when these diseases occur in epidemic form, usually in urban areas, and when a common origin can hardly be denied, that the infection is likely to be traced to the milk-supply. It is hard to be sure even about the definite milk-borne epidemics, because so many of the minor outbreaks are not reported, or the records are buried in the pages of the medical officer of health's annual report. This state of affairs is probably not peculiar to this country. It is comforting, however, to learn that, whatever the real frequency of these outbreaks, it is, at least in some parts of the world, beginning to decline. Thus Dr. George H. Bigelow and Dr. Roy F. Feemster[1] are able to report that during the three years 1930–32 only nine outbreaks of this type were recorded in the State of Massachusetts, compared with 45 in the 1911–15 quinquennium. The reduction has been steady, and the reasons for it are not far to seek. The total amount of milk consumed per head of the population has remained approximately constant for the last ten years, but there has undoubtedly been increasing care to safeguard the milk-supply. Tuberculosis amongst cattle, as is well known, is much less common in the United States than in this country, and by the pursuit of an intelligent eradication policy many States have now, with the coöperation of the Federal Government, succeeded in eliminating this disease or reducing it to very small proportions. Most of the larger cities now insist that all milk except that from tuberculin-tested herds, shall be pasteurised, while a few cities insist that even the milk from tuberculin-tested herds shall be pasteurised. Since the amount of certified milk consumed raw is very small, and has of recent years been falling, so that it represents only 0·62 per cent. of the total milk consumed, it follows that almost all the milk offered to the public has been pasteurised. The smaller cities and rural districts are not so active in milk control work, and one of the most striking facts brought out in this report, and in other recent reports on the prevalence of milk-borne diseases in the United States, is that the incidence of milk-borne epidemics is becoming more and more restricted to these smaller units of the population. From the large towns they have been practically banished. Our American colleagues have realised two main facts: first, that milk is one of the most nutritious, and incidentally economical, of foods; and secondly, that raw milk, however clean, can never be guaranteed to be free from pathogenic micro-organisms.

A SUBSTITUTE FOR CALF LYMPH

It has been recognised for some time that our standard methods of producing vaccinia virus might be improved upon. Calf lymph is never sterile, and though modern methods of preparation free it from all the pathogenic and most of the non-pathogenic organisms, great care and labour are needed to bring this about. Consequently investigators have sought other sources of virus. The possibility of using organs other than the skin and less liable to contamination has been tested by Levaditi, who in 1923 claimed success with safety for his neurotesticular strain of vaccine. This is a sterile product, but the hæmorrhagic and necrotic lesions it evokes in animals, and its affinity for nervous tissue, make its safety suspect especially in view of the possibility of post-vaccinal encephalitis. The success of tissue culture in the cultivation of viruses at once suggests another way of attacking the problem. A simplified form of tissue culture has been used for this purpose by T. M. Rivers,[1] who grows the virus in a medium of minced chicken embryo suspended in Tyrode's solution. By this method he gets a sterile product of considerable potency that has already been tried successfully in human vaccination. Rivers's culture virus originated from a dermal strain rendered free from contaminating bacteria by passage in rabbit's testicles. This treatment, however, has not altered the type of lesion that it produces or its virulence, and it is therefore free from the objections that can be made to the use of Levaditi's neurovaccine. A third method of producing virus has arisen out of the work of A. M. Woodruff and E. W. Goodpasture[2] on the cultivation of fowl-pox virus in the chorio-allantoic membrane of the developing hen's egg. Later, in collaboration with G. T. Buddingh, they succeeded in cultivating vaccinia also in the same way. In order to get a sterile virus for infecting the eggs they used Levaditi's neurovaccine. Their product would therefore have been open to the same objections, and they did not in fact use it for human vaccination. In our present issue, however, Lieut.-Colonel W. D. H. Stevenson and Dr. G. G. Butler report the successful cultivation of a dermal strain of virus by a modification of

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[1] Amer. Jour. Pub. Health, June, 1933, p. 571.

[1] Jour. Exp. Med., 1931, liv., 453.

[2] Amer. Jour. Path., 1931, vii., 209.

Woodruff and Goodpasture's technique. Their vaccine is sterile, the method is not as arduous or as expensive as the production of calf lymph, and the yield is excellent. Their virus is free from the objections that can be made to neurovaccine, and it is, at least in theory, superior to that of Rivers in that the seed virus comes direct from dermal lesions, and has not been passed in testicles. Stevenson and Butler are cautious about using this vaccine in human work, and emphasise the necessity of testing it in animals first and of ensuring that its virulence, affinities, and immunising power have not been altered by growth in eggs. This they now propose to do. It is to be hoped that the result of their work will be satisfactory, for their vaccine seems to represent a definite advance and to be free from the objections to which calf lymph is open.

THE COMFORT INDICATOR

AT the time of writing it seems indeed "a matter of some urgency that more attention should be directed to the study of human comfort in relation to warmth of the surroundings." The investigation indicated is in progress, for under the auspices of the Industrial Health Research Board T. Bedford and C. G. Warner are studying the separate environmental factors which go to produce a particular condition of warmth.[1] These are: (*a*) the temperature of the air, (*b*) its humidity, (*c*) its rate of movement, and (*d*) the amount of radiation. The fact that there are considerable individual differences of opinion as to what are comfortable conditions makes it necessary that any attempts to define a zone of comfort should cover a large number of persons as well as a wide range of living and working conditions; the inquiry is therefore being conducted in selected factories, workshops, and offices. Among the instruments devised to obtain a measure of the combined effects of radiation and other factors are the kata-thermometer, the globe thermometer, and the eupatheoscope or comfort indicator. This is a blackened hollow cylinder, 22 inches high and 7½ inches in diameter. Heat is put into it, and by means of an electrical resistance its surface temperature is maintained at 75° F., which is approximately the average surface temperature of a clothed person when comfortably warm. The rate of heat loss from the surface (and therefore the heat input required to maintain the constant surface temperature) varies with the temperature and velocity of the surrounding air, and with the amount of radiation from the surroundings. The reading of the instrument depends on this heat input, and therefore gives an index of the combined effects of air temperature, air movement and radiation. The measured efforts of this naked little Robot to keep itself warm—or cool—are of course supplemented by other estimations, and while various physical observations are being made as many workers as possible are questioned about their sensations of thermal comfort; their replies are associated with the instrumental measurements, allowances being made as far as practicable for the clothing worn by the persons questioned. If the range of thermal conditions is sufficiently wide it is hoped not only to establish correction factors for the readings of the kata-thermometer, but also to trace the influence on subjective sensations of comfort of the separate thermal factors, air temperature and humidity, air velocity and amount of radiation. It would seem that the investigations are being pursued in an appropriate season; this week should certainly reveal extreme readings in one direction. It is hoped that the study will lead to a greater control of conditions of radiation and ventilation, with a corresponding increase of comfort to industrial workers.

WHEN IS ABORTION JUSTIFIED?

THE plea of an American medical practitioner of standing and experience for an extension of the grounds upon which abortion is legally permissible,[1] is of interest in connexion with the discussion of the Representative Body of the British Medical Association reported on another page. In the United States it is estimated that two million and in Germany over a million abortions are performed a year—the great majority of them by unqualified persons—with consequences disastrous for the health of the women. At a time when the religious and moral inhibitions which, in the past, held the practice in check are rapidly losing power, and when economic conditions are especially unfavourable to the rearing of a large family, it is reasonable to expect the number of abortions to increase rather than to diminish. If, therefore, argues Dr. Rongy, we purge our minds of religious and other preconceptions and adopt a purely medical approach to this issue, the problem before us is whether or no we can reduce maternal mortality and morbidity by extending the conditions which justify abortion. In the last chapter the author specifies seven such conditions. They are: illegitimate pregnancies; cases of young women who have been impregnated by their fathers or brothers; women who are mentally defective; women who have been deserted by their husbands; women who have been left widows while still pregnant; women who have had several children and who want no more in order to preserve health; and lastly, women whose husbands are already providing for several children and on economic grounds want no more. It will be seen that Dr. Rongy casts his net very widely, far too widely it will be thought by most medical men in this country.

But since this is one of the first books advocating legal reform in regard to abortion to be written by a medical man of distinction, it might well be studied not only by those whose sympathies have been aroused by the arguments put forward in Dublin and elsewhere in favour of some modification of the present law, but by those who feel that the gravest danger would attend any relaxation of our ethical code in this respect.

Lord Lee of Fareham, who has been chairman of the Radium Commission since it was established in 1929, is retiring from that office on August 13th, having refused reappointment for a further term of four years. It is understood that he will be succeeded by Lord Donoughmore.

INDEX TO "THE LANCET," VOL. I., 1933

THE Index and Title-page to Vol. I., 1933, which was completed with the issue of June 24th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

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[1] Thirteenth Annual Report of the Industrial Health Research Board. H.M. Stationery Office. 1933. Pp. 36. 9*d*.

[1] Abortion—Legal or Illegal. By A. J. Rongy, M.D., F.A.C.S. New York: Vanguard Press. 1933. Pp. 212. $2.

SPECIAL ARTICLES

MEASLES MORTALITY

BY DUNCAN FORBES, M.D. EDIN., D.P.H. CAMB.
MEDICAL OFFICER OF HEALTH, BRIGHTON

BEFORE considering a scheme to reduce the number of deaths from measles I have set out a few epidemiological facts gathered from the present and past epidemics which bear upon practical action.

Epidemiology

Measles is Unavoidable.—It is essential to recognise that sooner or later practically everyone suffers from an attack of measles. Almost all elementary school-children have been attacked before they leave school (Table IV.), and it is a distinct asset for them to be immune to a disease so frequently epidemic. The adolescent and adult who escape measles in school life often suffer severely later when they can less easily afford time off work. Until the spread of the disease can be controlled, it is best to regard an attack as an insurance against further trouble.

Case-mortality.—It is well known, although seldom taught, that the case-mortality of measles is low; for instance, in the present epidemic in Brighton 2402 cases are known to have occurred, and there have been 30 deaths, giving a case-mortality *on known cases* of 1·2 per cent.; only nine deaths occurred in home-nursed cases. The cases and deaths were distributed as shown in Table I.

TABLE I.—*Cases and Deaths in Age-groups*

—	Months.				Years.						
	0–3	3–6	6–9	9–12	1–2	2–3	3–4	4–5	5–6	6–10	10 +
Cases	—	5	24	32	137	198	150	327	551	842	136
Deaths ..	—	—	2	1	14	5	3	3	2	—	—
Case-mortality	—	—	8·3	3·1	10·2	2·5	2·0	0·9	0·36	—	—

In the last 28 years there have been 478 deaths attributed to measles in Brighton, distributed as shown in Table II.:—

TABLE II.—*Age-distribution of Deaths in 28 years*

—	Months.				Years.						Total.
	0–3	3–6	6–9	9–12	1–2	2–3	3–4	4–5	5–10	10 +	
Deaths in 28 years ..	5	7	21	46	162	86	47	30	66	8	478

It is evident from the figures in Table I. that relatively the case-mortality is high from 6–12 months, is highest from 12–24 months, and diminishes rapidly in the second, third, and fourth years.

Incidence at Varying Ages.—The incidence of measles is low in the first year, but rapidly increases thereafter up to school age. Table III. shows that even when exposed to infection young infants frequently escape attack.

The figures in Table IV.A have been obtained on a municipal housing estate to which families of not less than four (usually parents with two or more children) were sent with consequent increased opportunity of child contact. Table IV.B gives similar information for a working-class district in the town. In both districts considerable percentages escaped infection at the dangerous age-periods, but these percentages were less in the suburb, although the housing conditions were ideal, owing no doubt to the larger families and increased density of child population.

TABLE III.—*Incidence in Infants in Measles-infected Families*

—	Age of exposure in months.													
	0–1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	Totals.	
A.	—	—	—	1	1	5	4	7	10*	10	8†	4	50	} 116
N.	7	8	9	7	7	7	5	3	5	4	3	1	66	

* Two deaths. † One death. A. = attacked; N. = not attacked.

TABLE IV.—*Age-incidence of Measles* (A) *on a Municipal Housing Estate and* (B) *in a Working-class District*

A

Percentages.	Age in years.							
	Under 1	1–2	2–3	3–4	4–5	5–6	6–10	10–15
Had measles before epidemic ..	—	—	4	25	35	48	75	95
Infected during ..	21	36	36	21	36	34	16	1
Not attacked ..	79	64	60	54	29	18	9	4
Actual number of children.. ..	38	36	72	67	94	113	372	290

B

Percentages.	Under 1	1–2	2–3	3–4	4–5	5–6	6–10	10–15
Had measles before epidemic ..	—	—	1	7	27	29	69	90
Infected during ..	13	24	29	32	27	46	17	2
Not attacked ..	87	76	70	61	46	25	14	8
Actual number of children.. ..	103	83	101	113	113	80	281	319

Present Methods of Control

EXCLUSION FROM SCHOOL

Home Contacts.—The Board of Education advise the exclusion of home contacts from infant departments for a period of three weeks even if there is a history of previous attack; they recommend a similar exclusion from senior departments if there is no history of attack.[1] It is difficult to find any justification in practice for this advice. As a matter of fact the elementary school is the great disseminator of the disease; when a school is infected every scholar is infected sooner or later, and all non-immunes suffer from an attack of measles or develop a temporary immunity by the inhalation of sub-minimal doses of infection. Even if infection were not general, exclusion during the long incubation period can do no good, and exclusion about the time of attack is actually harmful as, if overlooked by the mother, it allows the child to mix freely with the younger children of neighbours, the very children it is most important to protect. If, on the contrary, the child continues to attend school, the centre of infection, he is sent home for immediate isolation as soon as symptoms develop. His attendance at school on the first day of illness is really immaterial as many others are developing the disease there about the same time, and everyone is finally infected. In Brighton home contacts continue to attend *infected* schools, but non-immunes are excluded from non-infected departments.

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[1] Memorandum on Closure of and Exclusion from School, 1927.

School Closure.—The Board of Education do not advise school closure as the chances are that even if the school outbreak were stopped the school would be reinfected later. School and Sunday school closure is useful at times to stave off the outbreak to milder weather. The great disadvantage of both school holidays and closure is that new cases are not notified, and the health authorities get out of touch with the individual cases, and cannot advise the calling in of a doctor for the patient and serum treatment with a view to modification of attack in contacts under school age.

Class Closure.—If the first case in a department is promptly notified it seems reasonable to attempt to stop school infection by closing the class for one week, one week after infection. In practice class closure has had very limited success.

HOME NURSING

By notifications from school, from the health visiting staff, &c., the medical officer of health gets to know of a majority of infected homes, the mothers are warned of the seriousness of the disease and the need of medical supervision. The general practitioner knows that he can call in the district nurse, so that serious cases have both medical attention and home nursing to their great benefit.

HOSPITAL TREATMENT

If medical officers of health examine their death returns they will find that a large number of the deaths occur in hospital nursed cases; in the present epidemic 21 out of a total of 30 deaths occurred in hospital. Many of us used to attribute the high mortality in hospital to the fact that the worst type of case was removed to hospital, also that these cases were often poorly nourished children from unhealthy homes. Experience tends to show that whilst the above are potent causes of the alarming case-mortality in hospital, the chief cause is the rapid dissemination throughout measles wards of organisms giving rise to fatal broncho-pneumonia. It is usually best, however bad the home conditions and however poor the nursing, to leave even the severe measles case at home, warm in bed with the window open. Until, in hospital, each patient can be nursed in a well-ventilated cubicle or be nursed under open-air conditions the patient will do better at home.

Suggested Methods of Control

Home contacts for the reasons stated above should not be excluded even from infant departments except they attend uninfected schools. *School closure* should only be used to stave off epidemics to milder weather, for instance by the prolongation of the Christmas holiday; Sunday schools should be closed at the same time. *Class closure* is at times useful, and head teachers should be warned of the importance of immediate notification, particularly of the first case in school.

Exclusion of the under fives should always be considered when a school is known to be infected, and is useful in severe weather and in unhealthy areas if the children are of poor physique and live in unhealthy surroundings. It is also important as the four year olds more often than older children have younger children at home at the dangerous age-periods.

The Child under School Age.—Local authorities can do most good by concentrating their attention on children under school age, and particularly on the child aged from 6–36 months old when the case-mortality is highest. There is no doubt that if children at those ages could have their attacks delayed to the next epidemic, or have their attacks modified if infected, then there would follow a steep fall in measles mortality. Our real problem is to devise means to secure these objects.

Information to and Education of Parents.—When measles invades a district the mothers should be warned of the presence of measles in the neighbourhood, and it should be pointed out that whilst measles is not a dangerous disease to normal children of 5 and over, it is very dangerous to children aged 6 months to 3 years. Those who have children under school age should be advised—

(1) not to allow their children to mix with other children for at least the three months that measles is prevalent in their district; also

(2) that if they have, at an infected school, older children who have not been previously attacked, they should communicate with the education authority so that if protective serum is not available, those children may be kept at home, and by escaping attack themselves, prevent infection of their younger brothers and sisters.

The difficulty is to make parents understand that if the attack can only be delayed until the next outbreak two or three years later, the younger children will have passed the dangerous age. At present, mothers are simply told that measles is dangerous, and they naturally will not believe it as they see all around them children at the older ages being attacked and quickly recovering. As insufficient distinction is drawn between attacks in older and younger children, most mothers with young children say "they've got to get it some time, so the sooner it is over the better." In this way, on account of faulty education, the one and two year olds are exposed to unnecessary risks. I feel sure that education is of primary importance in the reduction of measles mortality.

Serum Prophylaxis.—It is quite possible to abort or modify measles attacks with convalescent and adult human serum, and, if a sufficient supply is available, there is no reason why, if a school-child is attacked, his younger brothers and sisters at the dangerous age-periods should not be protected from severe attacks. In Brighton, when cases of measles are notified from school, the homes are visited and mothers are invited to take their young children to the sanatorium for injection of adult serum; at times the doctor visits the homes and injects serum. Unfortunately, because of ignorance and prejudice only a few mothers have taken advantage of our offer, and it is evident that better education is necessary and that injections must be made available at more convenient centres. Dr. R. N. Walker who has controlled prophylaxis here reports that up to date the injection of 44 young children in their homes was followed by abortion of attack in 23 cases, modified attack in 14 cases, and apparently unmodified attack in 7 cases; amongst these there were no deaths.

Summary

What I want to emphasise is the need of a fuller recognition of the fact that measles is unavoidable, and that under present circumstances the exclusion of school home contacts is quite futile. Seeing that such is the case the Board of Education would greatly assist local authorities by withdrawing its advice as to the exclusion of home contacts from school; this equally applies to chicken-pox. What is really required is the abandonment of the old methods and a concentration of our attention on the dangerous age-periods, and the education of parents (1) as to the advantages of delay of attack until a relatively safe age-period has been reached, or alternatively (2) as to the benefits of prophylactic injection with a view to ensuring aborting of attack or a mild attack. Of almost equal importance is the need to warn general practitioners that however serious the case and however poor the home, the child will do better there than in the ordinary hospital ward.

MEDICINE AND THE LAW

"Medical Officer of a Parish"

A CASE decided recently by Lord Fleming in the Court of Session in Scotland makes interesting reading in relation to compensation rights. The action was brought by a member of the medical profession against the county council of Wigtown for a declaration that when, under the Local Government (Scotland) Act, 1929, the functions of a certain parish council were transferred to the county council, the plaintiff, "being the medical officer for that parish," was transferred to, and became an officer of, the county council; that he was entitled to hold office under the county council by the same tenure and upon the same terms and conditions as applied to his employment under the parish council; and entitled to receive the same remuneration. Lord Fleming, however, stated judicially that so far as he was aware there was no statutory sanction for the title "medical officer of a parish." No doubt the old parish council was limited to the parish, it had health duties to discharge, for which it required to employ a medical man or woman, or both, one or more. But all that might stop short of the creation of the title imputed or asserted. He also expressed grave judicial doubt whether the plaintiff ever held, in the sense of the statutes, any "office" at all. Not every employment imports an office. There was an income-tax case which ended only in the House of Lords regarding the correct method of assessing certain officials of a railway company. Of one of these who occupied quite a useful and important post a law lord remarked "this gentleman does not hold an office: he merely sits in one." In searching for the root of the whole trouble in the Wigtown case Lord Fleming arrived at the impression that it was due to a failure to observe that the statutory provisions for transfer of officers were not limited to whole-time officers but extended to part-timers also. Important arrangements concluded between the authorities and the plaintiff on the basis or assumption that he would be entitled to compensation under the 1929 Act ended in smoke, for the Secretary of State decided that it was a total misunderstanding to think that any such compensation was payable, for the sufficient reason that the plaintiff's office, or appointment, or employment, was not abolished. It was transfer, not extinction. In the result the plaintiff obtained the judicial declaration for which he asked. Lord Fleming had no difficulty in disposing of the county council's contention that the Secretary of State went wrong in refusing compensation.

Income-tax on Professional Earnings Abroad

If a London surgeon performs an operation abroad, his fee is liable to United Kingdom income-tax. This point was stated as beyond doubt in the recent judgment of Finlay, J., on the Crown's successful appeal against Miss Lilian Braithwaite. The question had been raised during the argument in the case. If Miss Braithwaite should succeed before a higher tribunal, the legal position of the surgeon might be reconsidered in the light of such a result. The main facts in Miss Braithwaite's case were as follow. She was in the United States in 1925–26, acting, broadcasting, doing film work, and making gramophone records. The negotiations for her American programme had begun in England, but the contracts were signed in America. While absent in the United States she had no place of business in the United Kingdom and no agent; her professional work was being carried on where she happened to be and nowhere else; while she was acting in America, she could not be acting in England. She was assessed to tax under Schedule D ("tax in respect of any profession, employment or vocation not contained in any other Schedule"). Mr. Justice Rowlatt sent her case back to the Commissioners so that they might determine whether she was assessable on the whole of her earnings or only on such earnings as she made in the United Kingdom. The Commissioners thought her American earnings were not liable to be brought into assessment. This decision of fact was important, as the court is often reluctant to interfere with a decision of fact even if the decision is not one which commends itself to the court. Mr. Justice Finlay, however, referred to the words of Schedule D to the effect that tax is charged thereunder on "the annual profits or gains arising or accruing . . . to any person residing in the United Kingdom from any trade, profession, employment or vocation whether the same be respectively carried on in the United Kingdom or elsewhere." Miss Braithwaite's residence in the legal sense was in England. The judge held that she carried on one and the same profession in the United Kingdom and in America. If she went on tour abroad, she would not be exercising one profession in Paris and another in Berlin. She carried on her profession in the year in question partly in Great Britain. This was enough to make her liable to assessment in the United Kingdom for all her professional earnings in that year. The court distinguished the well-known decision in Colquhoun *v.* Brooks, where a firm had a profitable business in Australia but kept the income in Australia—an important point which enabled the firm to defeat the Crown's efforts to bring the Australian earnings within assessment. It is not clear, however, that if Miss Braithwaite's American earnings had been kept in America, they would have escaped.

HANDBOOK OF TUBERCULOSIS SCHEMES.—The seventh edition of this useful handbook is now ready. The book forms a complete directory of tuberculosis work throughout the country. Each administrative area in England, Wales, Scotland, Channel Islands, Northern Ireland, and the Irish Free State is dealt with separately: such details as general and tuberculosis death-rates, provision for treatment under the tuberculosis schemes, and the administrative staff are included. The handbook forms the only published list of tuberculosis officers, and the only complete list of residential institutions for tuberculosis. The valuable charts showing the comparative death-rates in the various counties and county boroughs is of interest and may lead to healthy emulation. The new edition should meet the needs not only of the tuberculosis service but of workers engaged in other branches of social work. It may be obtained, price 5s., from the secretary, National Association for the Prevention of Tuberculosis, Tavistock House North, London, W.C.1, or through any bookseller.

BRITISH MEDICAL ASSOCIATION

MEETING IN DUBLIN

PROCEEDINGS OF THE REPRESENTATIVE BODY

THE annual Representative Meeting of the British Medical Association opened at the Royal Dublin Society Hall on July 21st, with Dr. E. K. Le Fleming in the chair. Mr. F. W. Ramsay, consulting surgeon, Royal Victoria Hospital, Bournemouth, was elected President of the Association for 1934–35.

The Law Relating to Abortion

Sir Henry Brackenbury referring to a resolution passed at the 1932 meeting in which it was proposed that the Council should consider setting up a special committee to discuss modifications of the law dealing with abortion, said that though this was an important question it was not sufficiently urgent to demand extensive and expensive study at the present time. This opinion was challenged by the Kingston-on-Thames, Brighton, and Warrington divisions, which had introduced respectively a motion and two amendments suggesting that the establishment of a committee for this purpose should not be postponed indefinitely. There was a nice grading in the measures proposed, as Dr. E. R. C. Walker (Aberdeen) pointed out, caution increasing as one came farther north. Brighton wanted the committee to be set up in the coming year; Kingston-on-Thames would be content to see it "as soon as possible"; Warrington proposed that it should be established as soon as the work of the special committees on nutrition and the medical curriculum, set up by the Council in 1932–33, had been completed; while Dr. Walker himself, on behalf of Aberdeen, suggested that it should be referred to council to consider once again and report on the desirability of setting up such a committee.

Dr. Helen Lukis, who introduced the motion for Kingston-on-Thames, gave three reasons for thinking the establishment of this committee a matter of urgency. First, because the legalisation of abortion in some countries, notably Russia, had created a demand for abortion in this country; secondly, because, owing to the economic crisis, and possibly as an offshoot of birth-control teaching, women were having more recourse to abortionists than they had done in the past; and thirdly, because the law was uncertain on this point and juries hesitated to commit themselves upon it. The Association should undertake to consider the law and to give a lead to public opinion, instead of being led by it.—Dr. L. A. Parry, for Brighton, pointed out that in law the procuring of abortion was punishable by penal servitude for life, and there was no legal exception made for the performance of therapeutic abortion, unless pregnancy had proceeded to the seventh month, and the operation was done to save the life of the mother. Although no one had been convicted for performing therapeutic abortion in England, in a recent French case two doctors had been sentenced for performing an operation which their colleagues thought wholly justified, and the law in France corresponded closely with ours. It was the business of the Association, he thought, to get the law stated in clear terms. No other body was so well fitted to inquire into the subject.

Dr. J. S. Manson (Warrington) urged upon economic grounds that the establishment of the committee should be postponed until the work of the other committees was completed, but Lord Dawson of Penn, although agreeing that the subject was one of great importance, thought that the time was not ripe for a committee to be set up. There was a good deal of quiet thinking, he said, going on in the community over the question of abortion, but it had not yet crystallised sufficiently for official action to be taken. If an inquiry was undertaken now it would retard thought instead of hastening it. Even in a small gathering it was difficult to get people to express their views openly and frankly about abortion, because there was still a certain conflict in their minds. In practice, no difficulties were raised about therapeutic abortion.

Dr. Oscar Williams (South-West Wales) and Dr. David McKail (Glasgow) thought it was the business of the medical profession to give a lead in matters of this kind, and not to wait for public opinion to declare itself, and Sir Ewen Maclean was also in favour of an active policy. He thought there were many women upon whom abortion ought to be performed for therapeutic reasons, but who were left in danger because their medical advisers were diffident of facing the risks involved. The law required amendment, and he felt strongly that the Council should be instructed to proceed in the appointment of the committee.—He was supported by Dr. H. D. Woodroofe (Woodstock), who thought that professional responsibility made the study of this question an obligation.—Dr. C. O. Hawthorne, in a concise speech, took exactly the opposite opinion. The question, he thought, was entirely legal, moral, and economic, and it was not the duty of the medical profession to inform the public mind upon these issues, nor were doctors competent to do so. Not a committee of medical experts, but a general committee should be appointed to inquire into the law relating to abortion, and let those who wanted it pay for it. The Association ought not to be inveigled into expressing an opinion on a subject beyond its province. Enjoined in these terms to mind its own business, the meeting meekly embraced Dr. Walker's proposal that the matter should receive further consideration by the Council.

The New Pensions Scheme

Dr. H. Guy Dain (chairman of the Insurance Acts Committee) referred to the pension scheme for insurance practitioners, inaugurated in December, 1932. The response, he said, had already exceeded expectations. To be successful a scheme of this character had to be adopted by a recognised body, such as the B.M.A., and this was the best scheme of the kind available in the British Isles.—Dr. J. A. Hooker, however, expressed for the Bristol division two objections. The term pension, he said, conveyed to most people the idea of a reward for long and patient service to which servant and master had both contributed. In this case the servant only had contributed, and the name was therefore misleading. Moreover, the degree of family protection given in the early years did not appear to be sufficient. The doctor in his first years of practice wanted to be sure that his family would be covered in the event of his premature death. Most people would rather have a scheme which made better provision for the family even if it meant a smaller pension later.—Dr. Dain pointed out that anyone who wanted to do so could insure for larger early benefits under the scheme as it stood at present, and the meeting did not support Bristol.

Workers Passing Out of Medical Benefit

The enforcement of the National Health Insurance and Contributory Pensions Act, 1932, which will put an end to the continuance in insurance of many workers after a specified term of unemployment, will give rise to a new situation at the end of this year. Dr. J. Hudson, on behalf of Newcastle-upon-Tyne, proposed that the Government should be urged to arrange that persons falling out of insurance should be guaranteed medical attention by the public assistance committees taking the onus, and providing attendance in the same form as that previously carried out by insurance committees.—This tactfully worded invitation to public assistance committees to pay the capitation fee was discussed by Sir Henry Brackenbury, who said that the Insurance Acts Committee was anxious about the position which would arise after Dec. 31st. It was impossible, however, to adopt Dr. Hudson's solution, however desirable. It had been estimated that 100,000 people would be thrown out of insurance at the end of the year, and this was probably a serious understatement. As the law stood these people would be thrown back upon the public assistance authority and the district medical officer for the care of their health. It would be desirable if in some way they could remain under their panel doctors but this was impossible, because they would then constitute a specially favoured class of public assistance persons. The Insurance Acts Committee wanted to secure if possible that these patients should be attended by their chosen doctor. There was only one way in which this could be achieved, and that depended on the goodwill of the public assistance authority. If the authority would adopt the open choice method of obtaining district medical officer services, the relations between patient and doctor need not be disturbed. It was open to public assistance authorities to adopt this method after Dec. 31st, and the patient thrown out of benefit would then become a public assistance person choosing a public assistance doctor. Unless this system was chosen the district medical officer would be overwhelmed by the extra work thrown upon him. The committee had his situation in mind, and in cases where such an increase of work occurred would support the district medical officer in an application for increased emoluments.

Dr. C. E. Douglas remarked that, in Fife, since the enforcement of the Local Government Act, a liaison committee had been formed by insurance practitioners to help the medical officer of health and the public health committee; between them they were forging a system based on the open choice method advocated by Sir Henry Brackenbury.—Dr. S. Wand (Birmingham) also supported the principle of free choice of doctor by patients thrown out of insurance. In Birmingham it was thought that this could be achieved by means of public medical services, and that the public assistance authority should go on paying the subscription for members of a public medical service who were also receiving relief.

The Newcastle motion was withdrawn, but was followed by another on the same lines from Edinburgh and Leith, under which the Minister of Health was to be urged that "it would be advantageous were public assistance committees to arrange for medical benefit to continue to be provided through insurance committees by insurance practitioners" for the patients thrown out of benefit. Despite the fact that it fell outside the region of practical politics this suggestion was heartily debated. Dr. F. K. Kerr, who moved it, said that at the end of the year in his district a large number of good-class working people would have to seek their medical attendance in the company of all the toughs and hobos of the neighbourhood; and they simply would not do it. The National Health Insurance Act should go on evolving, and there should be room in it for those who fell out of insurance through misfortune. The change in the law involved a compulsory divorce between doctor and patient, both parties protesting. In some areas the medical officer of health was engaging newly qualified men and women at £200 a year, on so-called part-time service, and unless some effective scheme was adopted there would be an increase in the numbers of these assistants and the foundations of a State medical service would be laid.

Dr. T. F. Keenan (Reading) said that in industrial areas the population had been deprived of proper food, and they were now about to be deprived of proper medical attention. The meeting should insist, in the interests of the patients themselves, that these people should remain under the National Health Insurance Acts.—Dr. Dain pointed out that National Health Insurance was, as its name implied, an insurance scheme, and if it was to remain sound it could not undertake philanthropy. It would wreck the scheme if people who had not contributed for two or three years were to continue to receive benefit. If the taxpayer could be persuaded to pay for them to go on, well and good, but it would take a lot of spade work. He hoped the public assistance officers present resented the insinuation that they did not give proper attention to public assistance patients. He commended to the attention of the meeting the action of the doctors of Fife. This was a job for the local authorities, and they should be in touch with the local divisions of the B.M.A., and the committee must depend on the divisions for action in local areas.

Dr. J. C. Arthur (Gateshead) said that assuming that the free choice method was adopted by the public assistance authorities, what would the position be of parish doctors already appointed? A grant of half a million had recently been made to local authorities in some distressed areas. Would it not be possible to divert a small proportion—say 3 per cent.—towards keeping in benefit those patients who were being thrown out of insurance at the end of the year?—Dr. Oscar Williams (South Wales) disconcertingly announced that as a public assistance officer he did not at all resent the suggestion that he gave less adequate attention to new patients passed on to him from insurance doctors. It was impossible to feel a proper interest in large numbers of patients who did not want to come to him, and about whose case and history he knew nothing. National Health Insurance had been threatened with bankruptcy for three years, and the Government had seen fit to support it; why should not local government continue to do the same in an emergency? In his own district attempts had been made to coöperate with the county council, but though public assistance work had increased enormously the council refused to consider any increase in salaries.—Dr. James Dunlop (Glasgow) thought there should be more medical men on local government bodies, and that their medical colleagues in the district should coöperate by helping them to find time for such activities. An extension of public medical services might help to solve the problem created by the new Act.

At the suggestion of Dr. Dain, Dr. Kerr withdrew his motion, and a motion put forward by Cardiff and slightly amended was accepted without further discussion. This simply urged the Council to develop further a policy adapted to the needs of the most distressed areas.

Vaccination

Prof. R. M. F. PICKEN moved that local authorities should be empowered to pay the prescribed fees to any medical practitioner in respect of vaccinations performed. The proposal, he said, did not for a moment imply the abolition of public vaccination, but merely meant that the net would be spread a little wider in order to catch more unvaccinated people.—Dr. T. W. WADSWORTH (Liverpool) was for leaving matters alone. He had no difficulty in collecting fees for vaccination from his private patients, whether successful or not.—Dr. OSCAR WILLIAMS thought vaccinations recompensed the public assistance medical officer, to some extent, for his other burdens, and should be left to him.—Dr. E. W. G. MASTERMAN and Dr. E. R. M. MILLIGAN were for referring the motion back to Council, Dr. Milligan because he thought practitioners, before undertaking vaccination, should be conversant with the measures designed to prevent encephalitis.—Dr. J. MIDDLETON MARTIN and Dr. H. M. STRATFORD supported the motion, but Dr. J. A. PRIDHAM solemnly warned the meeting that an inspector would go round and examine their results. How would they like that?—Dr. KENNETH HOPE doubted whether it would increase the numbers of vaccinations performed.—Dr. C. F. T. SCOTT, by way of a deterrent, drew a picture of the public vaccinator surrounded by forms and statistics which had to be filled up in detail.—Dr. F. RADCLIFFE said that it was the first time he had ever heard the Representative Body objecting to the general practitioner receiving payment for something for which at present he was not paid. Moved, possibly, by this taunt, the meeting, after a little more discussion, carried the motion by 90 votes to 40.

Dr. PICKEN went on to propose that the B.M.A., while reaffirming its belief in the efficacy of vaccination in confirming immunity against small-pox, was of opinion that the time had arrived to consider whether greater protection of the public would be afforded by voluntary rather than compulsory vaccination. A law which was not operative, he said, was worse than no law at all, and though vaccination was compulsory in name it was not so in fact. If effective methods were to be adopted for getting vaccination generally accepted again, the stigma of compulsion must be removed.—This lukewarm expression of opinion would not do for Dr. E. W. G. MASTERMAN (Camberwell) who introduced a powerful amendment in the following terms :

> That this Representative Body of the British Medical Association expresses the emphatic belief that efficient vaccination and revaccination provide the only effective method known of preventing the occurrence of small-pox and its dissemination in the community and would welcome any additional methods or variation of existing methods of encouraging a more extended employment of vaccination, and that the Council be instructed to consider any suggested variations.

Owing to the mild form of small-pox which was at present seen in Great Britain, he said, vaccination had not been pushed as much, perhaps, as formerly. But the position would be weakened if compulsion was withdrawn and no other measures for increasing vaccination set up.—Dr. E. H. T. NASH said that mild small-pox had altered the public idea of the disease, and the chance of encephalitis was a menace. So long as there was a risk of the remedy being worse than the disease, the medical profession had no right to insist on its use. The position must be considered carefully before anyone at the present time could be asked to be revaccinated. The entire machinery of preventive medicine had changed since vaccination was introduced, and nowadays an epidemic seldom got away with more than eight or nine cases. He thought more vaccination would be done by voluntary than compulsory measures.—Dr. S. MONCKTON COPEMAN supported the amendment. He was keen on the extension of vaccination as far as possible, and in the most satisfactory manner. Too much of a bugbear, he thought, had been made of vaccinal encephalitis; the number of cases were comparable, perhaps, with the number of people in the British Isles involved in railway accidents in the course of a year. By appropriate methods it was possible in a large measure to prevent encephalitis, which after all was not a sequel peculiar to vaccination; it had been known to occur following measles, whooping-cough, rubella, and varicella, and one epidemic having all the characteristics of vaccinal encephalitis had occurred among children who had never been vaccinated. The meeting followed his lead and passed the amendment.

Medical Education

The Council had appointed a special committee to consider and report upon medical education. The interim report of this committee was presented at the annual meeting for discussion. Sir HENRY BRACKENBURY said that the committee had defined medical study as properly beginning at the point at which the student starts work upon human anatomy and physiology, and they had had to decide what stage he should have reached before he began these studies. All had agreed that the course should not be lengthened. It was generally agreed, too, that the general and medical education of the student should have reached a somewhat higher standard, when he entered on the study of anatomy and physiology, than was demanded at the present time, and the first main change proposed was that he should give evidence of such a higher education standard, and of being well grounded in the fundamental principles of chemistry, physics, and biology in their application to medicine. This groundwork might be acquired at school, university, or technical college. Anatomy and physiology ought to be taught as inter-related subjects, and the main object should be the study of the living rather than the dead body. The committee had suggested that three years and four months should be the period set aside for clinical study. Not less than two years and six months should be spent on the lines of the present curriculum, but with less specialisation. During a period of not more than nine months clinical instruction should be associated with a certain amount of practical experience, and it was hoped that this period would be afforded before the student took his final oral clinical examination. The necessary experience might be obtained in a resident post at an approved hospital, or as a clinical assistant, or as a pupil assistant of an approved general practitioner or medical officer of health, or by regular attendance at hospital practice in a medical school. At the end of the period of two years and six months clinical study, the student would take the major part of his final examination in the form of a written and oral examination, but a second oral examination would terminate his studies at the end of the final nine months period of practical experience.

Dr. J. HUDSON moved, for Newcastle-upon-Tyne, that the time had now arrived when the curriculum of the medical student should include a period of training in an approved general practice or dispensary, and Dr. A. GREGORY, for Manchester, attempted to modify this by suggesting that only students who intended to enter general practice should be required to have this special experience.—He was seconded by Dr. R. BOYD, but Dr. H. M. STRATFORD said that it was especially the student not going into general practice who needed this experience.—Dr. C. M. STEVENSON recalled the mutability of human aims by pointing out that a student had no idea what he would be seven years hence.—Dr. F. K. KERR agreed with Dr. Stratford, and Dr. Gregory's amendment was lost.—Dr. HUDSON agreed to withdraw his motion, which was largely covered in the scheme set out by the special committee.

Dr. D. MCKAIL agreed that 18 was a suitable age at which to register for medical training. He thought it was difficult to obtain a clear idea of physics and chemistry in the limited time available in a university course, and considered that it was better to spread these subjects over a longer period at school. He suggested that biology should be taught in the sixth term of medical study, so that the student did it as a sort of advanced course after he had learned his anatomy.—Wing-Commander H. M. STANLEY TURNER thought that, at the present time, physiology and anatomy were taught too much as pure sciences. The student's studies should be so arranged that he never lost sight of the fact that he was to be a doctor. Many medical students suffered, in his view, because they no longer got the experience they used to get in the old days as apprentices. He suggested that they should do a term of general practice after qualifying. To be good specialists they must have an idea of general practice.—Dr. M. B. RAY complained that he was always meeting post-graduates at the British Red Cross Clinic who knew nothing whatever about physical treatment. Physical methods were coming more and more into general use, and their study should be included in the curriculum. He added a telling illustration in the story of a doctor who mentioned to the nurse that he had heard diathermy was good for pneumonia, and asked her to pop out and fetch an apparatus and give the patient a treatment.—Dr. J. S. MANSON was disturbed by the phrase "skilled technician," which occurred in the interim report. The student, he said, should be taught that he was entering a profession, not a technical craft. He added, rather cryptically, that he never looked at slaked lime without remembering his entry into the medical profession. The study of biology should not end when the student left the school; it should be carried on into his later training.—Dr. A. GREGORY thought more time and attention should be devoted to medicine than to any other subject in the curriculum. The time at present spent on the study of major surgery was out of all proportion to its importance in medical practice, whereas more time might well be given to minor surgery. The examination system was pernicious, the student concentrating far more on getting through his examination than on acquiring a sound training. It would be helpful if the need for post-graduate training was set out as a necessary corollary in the next report.

Sir EWEN MACLEAN agreed that a higher standard of general education was thoroughly desirable.—Dr. J. W. BONE, although a member of the committee, found a slight blemish in its proposals. He objected to the suggestion that practical experience should be obtained in regular attendance at hospital practice in a medical school, because this was only an extension of the clerking and dressing which were customary at present, and the committee really wanted an improvement on that system. This suggestion had crept in because in certain overseas schools it would be difficult for the student to obtain practical experience in any other way, but the report did not say so, and as this was the easiest method of obtaining such experience it would be likely to become the most popular. Of all the bad ways in which a student could spend the last nine months of study, hanging about the hospital out-patient department was the worst.—Mr. W. MCADAM ECCLES pointed out that at present most of the teaching was done by men who had no experience of general practice, and it was not satisfactory. There was no reference in the report to the type of man who could teach, and this should be included in the final report.—Dr. LILIAN M. DICKSON (St. Pancras), who has taught anatomy for many years, agreed with the opinion of the committee that too much detail was taught, but deprecated the suggestion that only one part should actually be dissected. The student learned with his fingers as well as with his eyes.—Dr. LUCY NAISH agreed that it would be a mistake if the student did not dissect the whole body. He needed a wider knowledge of anatomy than nurses and masseuses who learned anatomy largely from books.—Dr. C. V. BROWN (Manchester) thought that midwifery and antenatal work should receive special emphasis in the curriculum.

In summing up the debate, Sir HENRY BRACKENBURY said that the committee had taken the liberty of assuming the presence of good teachers. One of the first objects of medical education was to give the student a right attitude towards responsibility. The committee wanted the curriculum to be one continuous process evolving from a proper knowledge of the fundamental principles of chemistry and physics and biology. He did not think it likely that the committee would go back on their statement that it was unnecessary for the student to dissect every part, though there was no suggestion in the interim report that only one part should be dissected. The meeting gratefully accepted the report.

Advertising Public Medical Services

Dr. ARNOLD LYNDON introduced a recommendation of Council defining certain terms upon which public medical services might be advertised. Such services, he said, had been in existence in some districts for many years, and the successful ones had not found it necessary to advertise, but practitioners in other areas found it impossible to make their services successful without the aid of advertisement. In London and other industrial areas a large section of the public were unwilling to obtain medical service by the usual general practitioner methods, and were joining hospital contributory schemes in increasing numbers. The Hospital Saving Association (H.S.A.) was a huge scheme of the kind, and had enrolled more than a million members. Persons belonging to the scheme could obtain a voucher which enabled them to receive treatment at hospital without having to see the almoner and submit to inquiries. The H.S.A. was in a position to advertise, and it was to combat this loss of patients that the Council was asking the Representative Body to allow more publicity to public medical services. The Council believed that if all subscribers were told to consult their own doctor, if the service was open to all practitioners in the area, and if the interests of those practitioners who did not wish to join were protected, then public medical services might safely be allowed to advertise.

One of the safeguards proposed was that the words "Consult your own doctor" should appear on all stationery of the service.—Dr. E. R. C. WALKER

(Aberdeen) said that his division thought it would be safe to delete what was after all a slight vulgarity: there was no need to use slogans upon official notepaper.—Dr. LYNDON accepted, and the meeting shared, this view.

Another section of the Council's recommendation required that an arrangement should exist whereby subscribers electing to choose non-coöperating practitioners could receive payment towards the discharge in part or in full of these medical accounts. With characteristic realism, Dr. HELEN LUKIS pointed out that none of the existing public medical services had any machinery by which such a provision could be enforced. Any canvassing was therefore bound to be in favour of the members of the service, and she advised referring the motion back to Council.—Dr. C. M. STEVENSON could see no reason why groups of practitioners should be allowed to advertise when individuals were not allowed to do so. If the motion was passed it would become impossible to combat lay bodies wishing to employ doctors and to advertise.

Dr. E. BRIERLEY objected to the suggestion in the motion that agents should be employed to bring public medical service schemes to the notice of potential subscribers, which he called making use of touts.—But Dr. KEENAN said that there was no intention of touting for patients. The public were demanding an extension of insurance services, and if the medical profession did not undertake to provide it, other people would.—Dr. CECIL BLOMFIELD emphasised the urgency of the position. Unless the loss of patients to other agencies, such as the H.S.A., could be checked it would mean ruin to practitioners in the poorer areas.—Dr. A. MCCARTHY said that in Birmingham the public medical service had been successfully advertised in the local press by means of leading articles on the subject.

Dr. MANSON uttered his usual warning cry at the approach of danger. Advertising was a powerful instrument, especially when used by the medical profession to influence the public mind.—Dr. F. K. KERR pointed out that the meeting was there to make decisions, not to refer things back to Council, and Sir HENRY BRACKENBURY came to his support. The H.S.A., he said, was already influencing the incomes of thousands of practitioners, and it was time the public medical services received equal publicity. The proposal to refer the matter back was concentrating the votes of those who thought the safeguards too weak and those who thought them too strong, and he begged the meeting to be cautious. If representatives felt that public medical services might, upon some conditions, be advertised, would they now direct themselves to deciding whether the recommendation of the Council embodied those conditions.—Dr. LYNDON, too, begged the meeting not to refer the matter back and so leave the practitioners affected without remedy for another year. The warning was taken to heart, and Dr. Lukis's amendment was lost.

Interest now centred upon the safeguards proposed by the Council. One of these—requiring that the public medical service should be approved by the profession in the area as being in the public interest, the relative decision to be taken at a meeting of the profession summoned by the B.M.A.—was challenged by Dr. A. H. MACKLIN. He did not see, he said, that the meeting need be summoned by the B.M.A. rather than any other body of practitioners.—Sir HENRY BRACKENBURY was disturbed; the motion was conferring the blessing of the B.M.A. upon the advertisement of public medical services. If that blessing was to be conferred upon any body of doctors or other persons who chose to summon a meeting he would rather the motion was turned down. The Association could not accept responsibility for seeing that the necessary conditions were fulfilled in such circumstances.—Sir ROBERT BOLAM thought it might be possible to get round the difficulty by putting part of the motion into a model scheme, but after a brief discussion the meeting decided to let this clause of the recommendation remain unaltered.

Dr. E. BRIERLEY then tried to persuade the meeting to delete the words referring to the employment of agents, already mentioned. He was supported by Dr. MANSON.—Once more Dr. KEENAN and Dr. J. H. MELLOTTE (Lambeth) explained that these agents were not touts; they were simply local people who were ready to collect the subscriptions of their fellow workers in offices and workshops.—Mr. MCADAM ECCLES took exception to some of the remarks made about the Hospital Saving Association, with which he was connected. It was dinned into subscribers, he said, that when they went up to hospital they must take with them a letter from their doctor. Sir Henry Brackenbury had said that the H.S.A. was out to take patients from general practitioners, and that was not so.—Whereupon Sir HENRY remarked that he had said not that the H.S.A. was out to take patients from general practitioners, but that, in point of fact, it did.—The motion was further discussed by Dr. S. WAND and Dr. C. E. S. FLEMMING, who wanted the wording changed to make it clear that touting was not intended.—Dr. HAWTHORNE pointed out that the advertising methods to be employed would be in the hands of the medical profession, and there was therefore a reasonable prospect that they would be kept within proper bounds. The amendment to delete the words referring to the employment of agents was lost by 81 votes to 79, and the motion was finally accepted in the following form:

> That the advertisement of Public Medical Services (including the employment of agents to bring such schemes to the notice of potential subscribers) would not contravene the generally accepted view of the profession that the practice of, or association with, advertising by individual practitioners is contrary to the public interest and discreditable to the profession of medicine, provided that the following conditions are satisfied:—
>
> (*a*) That the Public Medical Service is approved by the profession in the area as being in the public interest, the relative decision to be taken at a meeting of the profession summoned by the B.M.A.;
>
> (*b*) that it is the Service which is advertised *qua* Service, and not any individual medical practitioner;
>
> (*c*) that membership of the Service is open to any registered medical practitioner living or practising in the area concerned;
>
> (*d*) that an arrangement exists whereby subscribers electing to choose non-coöperating practitioners can receive payment(s) [illegible] ards the discharge in [illegible] l of their n [illegible]
>
> [illegible] d are

The meeting agreed that local authorities should be encouraged to make available the services of home helps, who would work in accordance with such conditions as would prevent them undertaking the duties of a nurse.

Dr. PICKEN moved that the time was not opportune to press for amendment of the scale of fees paid to medical practitioners called in by midwives.—Dr. MABEL CAMPBELL (Newcastle-upon-Tyne) pointed out that in some cases a doctor might be called in and spend a considerable time on the case before deciding that the patient should go to hospital. This service would only be paid for at the rate of an ordinary visit. Everyone was anxious that the general practitioner should do good midwifery work, and it was not fair that he should be penalised because he thought his patient needed special nursing.—Dr. PICKEN said that the Council had drawn the attention of the Ministry of Health to the ambiguity of the following paragraph which appeared in the present scale :

> Fee for all attendances of a doctor at parturition (that is from the commencement of labour until the child is born), whether operative assistance or not is involved, including all subsequent visits during the first ten days, inclusive of the day of birth, £2 2s.

This might be read as meaning that the doctor must attend throughout the confinement in order to obtain his fee. It was the duty of local medical officers of health to decide how this paragraph was to be interpreted ; most of them took it as meaning that the doctor was entitled to his fee if he attended for some part of the period of confinement.—Sir HENRY BRACKENBURY added that only a few medical officers of health had advised their local authorities that a doctor was not entitled to a fee unless he was present from the beginning of labour. It was a stupid interpretation, and not enforced by the Ministry of Health.—Dr. D. LEES (Edinburgh and Leith), with the support of the meeting, asked the Council to give an early opinion on the possibility of more economic use of the existing obstetric material in the country. At present a large number of midwifery cases were used for the training of nurses and health visitors who did not intend to practise midwifery, and last year the Representative Body had asked the Council to consider whether there was any practicable remedy for this situation.

Public Assistance Medical Services

Sir HENRY BRACKENBURY said that data had been collected from 400 public assistance medical officers working on the open choice method—that was to say, the method of appointment and employment of all local medical practitioners in the area concerned, who were willing to accept service with the authorities on a basis of remuneration per item of service or by a capitation fee. From these data it appeared that in a number of cases present holders of such appointments were seriously underpaid, but this was not true of all of them. Any move to ameliorate conditions of service must be made locally, and the Association would give practitioners its support. The Council had outlined the local action which ought to be taken, advising local practitioners to call a meeting of all public assistance medical officers, to collect statistical information, and to approach the public assistance committee. The sympathy of the Ministry of Health had been obtained for cases in which there was a definite increase of work, and the Ministry would encourage local authorities to listen to a plea for an increase of remuneration in such cases. Since it was necessary to show by figures when such an increase had occurred, he implored all public assistance medical officers to keep proper statistics from now on, in order that they might show by comparison that their labours had been augmented.

Register of Technicians

Mr. H. S. SOUTTAR, chairman of the science committee, said that at the suggestion of the Association, the Society of Apothecaries in London had instituted in 1930 a register of Biophysical Assistants to whom doctors could, with confidence, send their patients. This register was to be discontinued, and an independent body was to set up a new and comprehensive register of those engaged in services ancillary to medical work. Details of the scheme were at present in consideration by representatives of the bodies interested, and a further report would be made later.—Dr. M. B. RAY objected to the term Biophysical Assistants as it reminded him of the Bookmakers Protection Association ; and Dr. F. C. MARTLEY wanted to know how a comprehensive register was to be formed.—Mr. SOUTTAR replied that it would be up to those who desired to join the register to submit the qualifications which entitled them to be put upon it. It would consist only of those who applied for enrolment.

Dichotomy

Dr. ARNOLD LYNDON, chairman of the ethical committee, moved that the practice of fee-splitting, commonly called dichotomy—an arrangement between two practitioners whereby, unknown to the patient, one practitioner received part of the fee due to the other practitioner—was highly detrimental to the honour of the medical profession. This practice, he said, was a secret commission, and, as such, illegal. The meeting was anxious to vote immediately, but Mr. N. BISHOP HARMAN said that the resolution ought not to go out without a statement to the effect that the practice was extremely rare. The motion was carried unanimously.

VIENNA

(FROM OUR OWN CORRESPONDENT)

DRAFT OF A NEW MEDICAL ACT

THE Ministry of Public Health has just now forwarded to the representative associations of the profession (Aerztekammern) for consideration a draft dealing with the proposed new regulations concerning the statutes and the rights and duties of medical men practising in Austria. By this Act the present multiplicity of the rules governing the medical practice of a doctor would be done away with. It is proposed to modify the rules at present in force, according to modern requirements and modern hygiene and medical ethics. In future all jurisdiction pertaining to this matter will be enforced by federal legislation, and for the first time in this country the expression "medical practice" is to be strictly defined. The exercise of this calling is to be restricted only to persons who are legally qualified ; the law will stipulate the requirements necessary for starting practice, and the conditions under which permission may be withdrawn. A new feature is brought into force by a compulsory "hospital year," which will be required after the candidate has graduated in medicine. As a rule, public authorities will not be allowed to interfere with a doctor's work or his views. But it has been made clear by certain occurrences that under certain circumstances, such as sudden attacks of insanity, the authorities must be able to interfere with his activities. The interests of the doctor are, however, scrupulously safeguarded. The practitioner may be struck off the list of doctors only after careful judicial inquiry, and with the consent of the Ministry of Public Health and the local medical association. All laws and regulations pertaining to medical men and medical matters will be referred to these associations for opinion and consent. The title of specialist, as well as that of practitioner, will in future be legally protected. On the other side, the duties of the medical men are clearly defined, who will have to become members of their local associations. A distinctive feature of the new Bill is the extension of power entrusted to these associations. They will not only be able to impose higher fines upon medical men than hitherto in cases of unethical conduct or breach of medical laws, but they will also be able to suspend a doctor from practice for a limited time or permanently. Against this clause very strong objections have already been raised in medical circles, for obvious reasons. It does not appear likely that the right of removing the name of a practitioner from the register will ultimately rest with these bodies. Some of the other provisions of the Act are of interest. In future only those persons will be allowed to practise in Austria who are Austrian subjects by birth or naturalisation, and who possess an Austrian diploma or a foreign diploma recognised by an Austrian university, and also show proof of having served for at least 12 months in a hospital after graduation. A foreign medical man living abroad may practise occasionally, if called in consultation, or in places on the frontier. Foreign medical men studying in Austria may of course act as internes covered by their chiefs. The right to practise may be cancelled or withdrawn, if the doctor loses his or her nationality—i.e., if a woman doctor marries a foreign subject—or if a doctor is declared, after trial in a court, unfit to continue in practice because of insanity, drug addiction, or chronic alcoholism. Practising in two places is not allowed. The doctor must restrict his activities to his regular consulting-rooms, but may, of course, visit patients at their homes. No doctor may have two or more consulting-rooms, except in country places where there is no other medical man. A doctor in practice may not follow any occupation or a trade that would be detrimental to the standing of the profession. No doctor may refuse to render first-aid when able to do so, or to give evidence as witness in forensic cases. Professional secrecy must be preserved unless the judge insists on obtaining exact information. Every medical man must take part in the election of the members of the local association, and must accept nomination as an officer of this body, if he should be elected, unless his reasons for refusal are deemed adequate. An interesting item is also the proposed new regulation that no doctor should be eligible to the panel practice (Krankenkassa) unless he or she has been for at least 10 years a citizen of Austria, and has practised for at least two years in a hospital.

BOYCOTT OF GERMAN DRUGS

The outspoken anti-Austrian and anti-Semitic attitude of the present ruling party in Germany has had the effect that a very large section of the practitioners in this country have decided to abstain from using and prescribing pharmaceutic preparations coming from Germany. This hostile attitude has caused a very perceptible drop in the commercial output of German chemical firms to Austria. A list of remedies of Swiss and English and French origin, suitable as substitutes for the products of German firms, is being circulated amongst the profession, especially for Jewish doctors, who are fairly numerous in our larger cities, and there seems to be prospects of the transference of much business.

PANEL AND CONTRACT PRACTICE

Psychotherapy

THE report of the referees appointed by the Ministry of Health as to whether the treatment of insured persons by psychotherapy is within the range of medical service within the meaning of Medical Benefit Consolidated Regulations has now been received. The decision is that:—

> "Having considered the evidence submitted to us we are satisfied that the psychotherapeutical treatment given by Dr. X. in the four cases before us involved the application of special skill and experience of a degree or kind which general practitioners as a class cannot be expected to possess."

This decision is not unexpected in view of the nature of the evidence at the inquiry, for the doctor in question had studied psychotherapy for a long period and treated about 40 cases psychotherapeutically since 1929. Moreover, the experts on both sides concurred that in these four cases the appropriate treatment had been given, so that the local medical committee proved completely that this particular case came within Paragraph 8 (5) (*b*) of First Schedule, Part I., of the Medical Benefit Consolidated Regulations, 1928. The comments made by the referees on some of the arguments are, however, of interest. One argument used was that as insured persons must be given the opportunity of getting specialist treatment at some hospital or institution gratuitously before they may be charged by their insurance doctor, and as they may be peculiarly ill-fitted to make such a decision, it would not be advisable to place psychotherapy outside the Act, and thus permit practitioners using it to charge for such treatment. The reply to this was that experience alone can show whether persons subject to a psychoneurosis which makes them ill-fitted to exercise independent judgment will in fact be exploited, but "if they were it would not alter our opinion that psychotherapy involves the application of special skill." Another comment is that the expression "skill," having regard to its context, cannot be limited to manual dexterity. Finally, the referees say the required qualification indicated by the words "special academic or post-graduate study" is not satisfied by proof of attendance at a course of lectures alone. What will satisfy that requirement must depend upon the subject of the study. Psychotherapy, which deals with mental as distinct from physical phenomena, requires the adaptation of the mind of the student to conceptions more tangible than those of general medical science, and great care must be taken before a practitioner is held to have had "special study" within the meaning of Paragraph 8 (5) (*b*) of the Schedule referred to above. No mention is made of the third alternative qualification under which an insurance practitioner could claim specialist fees for treatment by psychotherapy, if he is recognised by other doctors in the area as having special proficiency or experience in the subject.

The outcome of this decision will be watched with much interest and some anxiety should the claims materially increase in number.

The Capitation Fee

The Minister of Health received a deputation from the Insurance Acts Committee on July 14th, when the position with regard to the capitation fee was discussed. Dr. H. G. Dain, the chairman of the committee, said that there had been no revision of the capitation fee since 1924, while since then the efficiency of the service had been improved. This was shown by the increased popularity of the medical service amongst insured persons. Since 1924 there had been a substantial increase in the services practitioners were required to render, and he thought they had a good claim for an increase in the fee, after allowing for a fall in costs of living. A revision of the capitation fee had been contemplated in 1932. The national financial crisis had, however, intervened, and practitioners had been confronted with a request to them to agree, and they had agreed, to a deduction of 10 per cent. This had affected them seriously. They had to perform more work for less money and private practice profits had also diminished. Serious hardships had been incurred on the North-East coast and in South Wales, and there was increasing discontent. The Committee wanted to put forward claims for consideration at the appropriate time and they wished to ask the Minister if he thought now was appropriate. They assured the Minister that friendly relations between insurance practitioners and their patients would not be affected, and that they would continue their efforts to give a completely satisfactory service. The Minister, in reply, said he appreciated the clearness and helpfulness of Dr. Dain's statement, and he agreed fully about the improvement in the National Health Insurance medical service. He thought any dissatisfaction among the practitioners was due to the 10 per cent. cut rather than to the basic rate of fee, but there was no evidence of any falling off in the efficiency of the service. The cut was part of a general economy over the whole field of Government expenditure; they had tried to distribute it as fairly as possible and any claim for restoration must be considered as a whole. The time had not yet come at which the restoration of economy cuts could be contemplated, so that he did not think the time was appropriate to advance suggestions for an increase in the capitation fee. If the claim for arbitration were put forward counter-arguments might prevail and the fee might be lowered rather than raised. If the fee were raised the national financial position might necessitate a reduction in the service provided, as an Exchequer grant could not be contemplated.

PUBLIC HEALTH SERVICES

London School-children

In his annual report as school medical officer for the County of London Sir Frederick Menzies says that for many important criteria of the health and well-being of London school-children the figures for 1932 were the best since school medical inspection was started some 25 years ago. For example, the percentages of children with serious dental decay, adenoids and enlarged tonsils, running ears, hardness of hearing, and lack of personal cleanliness were all the lowest ever recorded. He finds too that the nutrition of the children has been well maintained, the number recorded as subnormal being only ·1 per 1000 more than in 1931, and except for 1930–31 being the smallest yet found. When the 1932 figures for nutrition for all the children subjected to routine inspection at the statutory age-groups are analysed, it is found that the nutritional condition of the 8- and 12-year-old children is better than in the previous year; the small decrease in nutrition shown when the figures are aggregated is due entirely to the school entrants—associated probably with the recent epidemic of measles, a disease which notoriously leaves children in a debilitated condition.

Crucial tests of the value of school medical work are the condition of the leavers and the percentage of defects, found at any age, which are adequately treated. The leavers are in better health than their predecessors of a few years ago, and of the children in whom defects were discovered at routine inspections, 81·6 per cent. were undergoing treatment or were discharged before the end of the year as no longer requiring treatment. To quote the words of the report:—

> "In 1932 the general improvement which had taken place during the preceding years has strikingly continued and new records have been achieved. Personal hygiene in particular has again made noteworthy advance; the nutritional state of the child while in attendance at school has been maintained. Nowhere is there any sign of falling off. Although minor conditions of departure from health remain common, yet the grosser manifestations of disease are becoming more and more rare. The progress during school life is towards healthier conditions, and the 'leaver' child is the healthiest of all the groups, both in boys and girls, save for a failure to maintain the improvement in dental conditions, and the continued slight increase of spinal curvature in the older girls who, at the end of elementary school life, are growing faster than the boys."

The scheme for the control of rheumatism has advanced; additional beds have been provided at Queen Mary's Hospital, Carshalton. Nominations for hospital treatment under the scheme rose from 943 in 1931 to 1234 in 1932, part of the increase being due to the new arrangement by which the Downs Hospital, Sutton, admitted 138 children convalescent from rheumatic attacks and those who were suffering from advanced heart disease. The ability to provide for these cases, Dr. Banks Raffle says, makes a step forward in the attempt to deal with the problem of the rheumatic child in London.

Owing to the need for economy in the printer's bill, fewer special reports than usual are included; one by Dr. J. H. McIlroy on myopia is to appear in the medical supplement. The reports included are: (1) Dr. E. M. McVail on the two special classes for myopes in the central schools, the results of which are so encouraging both in examination (more than equal to those of the sighted children) and in later life that the system is regarded as worthy of extension; (2) Dr. R. H. Simpson on the effect of provision of meals on nutrition, of which the most important conclusion is that the necessitous children provided with free dinners were generally healthy and in a good state of nutrition; only 5 children out of 174 examined in one part of his investigation were found to be under-nourished. The number is small and perhaps exemplifies the view of Dr. Stockwell, of Leeds, that school meals cannot absolutely compensate for exceptionally bad conditions at home. There are also interesting notes on: (1) The new scheme for the adoption by private persons of children maintained under the Poor Law Act of 1930. The physical and mental condition of the children is ascertained and a Wassermann test made on each child so handed over, and as a rule arrangements are made for the child chosen to stay with the prospective adopters for a few months before legal adoption is agreed upon. (2) The disinfection of sand pits in nursery schools. Bacteriological examination by Dr. McCartney indicated that this was desirable, and the use of a solution of bleaching powder in the ratio of one pound of the powder to 20 tons of sand was advised; the quantity for one pit in a nursery school may be about two and a half ounces. Another subject for disinfection in nursery schools is the tooth-brush, and Mr. B. Samuel, L.D.S., the Council's consulting dental surgeon advises that tooth-brushes should be soaked weekly for 20 minutes in a solution of 1 in 100 carbolic acid or, alternatively, in a solution of 1 in 2500 thymol. After disinfection they should be thoroughly rinsed in clean water. Tooth-brushes, he thinks, should be renewed when the bristles become loose or worn, the life of a brush being 6 to 12 months.

The report of Dr. E. B. Argles on the place of detention at Ponton-road is briefly summarised, but its tables are retained and they show how much work is carried out on these young delinquents; 1052 children and young persons were admitted in 1932 (an increase of 209 on 1931), each of whom was examined both physically and mentally. From the table of offences it is seen that stealing and allied offences account for 68 per cent. of the charges, and among these is cited the case of a boy of 10, with the height of a boy of 8, who drove a car half a mile in a crowded district without accident. A detailed table of physical defects is given, and it is reported that the general physique and state of the delinquents compares unfavourably with those of London children as a whole; evidence of post-rickets is far more common, while the figures for stammering (1·8 per cent.) and enuresis (2·2 per cent.) are of interest because they are so small. In the table of mental ages it is shown that nearly 30 per cent. were up to or above average, 70 per cent. retarded by from one to six years, including 4·2 per cent. certifiably mentally defective.

Routine Medical Inspection: Its Nature and Frequency

A few months ago, on the proposal of Dr. Somerville Hastings, the L.C.C. asked its education committee to consider whether the equipment provided in medical inspection rooms is adequate, whether enough time is allowed for the inspections, and whether these are sufficiently frequent. On July 19th the special services subcommittee presented their observations on these questions.

In discussing equipment they pointed out that medical inspections in schools must be as homely as possible, and great precautions must be taken not to terrify the children. There would undoubtedly be numerous withdrawals of children from inspection if the methods and instruments of specialist examination were introduced, and these should be reserved for subsequent examination at a treatment centre or hospital if required. "If the ear, nose, and throat were to be investigated in school by special methods there would be no reason why the eyes, lungs, circulatory system, &c., &c., should not also be investigated to a similar extent." The subcommittee find that at a routine inspection session normally lasting 2½ hours each doctor deals with 25 children. This gives an average of six minutes per child, and any attempt to increase the numbers seen is apt to result in a feeling of racing against time. The Board of Education in 1931 expressed the view that an average of about six minutes is reasonable, provided that the medical officer has assistance—preferably from a school nurse—and provided this routine examination is regarded only as a sifting process. The subcommittee think it would be inadvisable in London to recommend that a clerk should be present to undertake the secretarial work; the room already contains as a rule the child, the mother, the doctor, the nurse, the head teacher or representative, and a representative of the care committee—not to mention the child just examined, with parent, and the child being prepared for examination, with parent. Audible dictation to a clerical assistant would involve to some extent infringement of the confidential character of the personal notes made by the doctor.

In deciding on the periods of school life at which inspection shall be made there are many factors which call for consideration. The Board of Education has prescribed, besides examination at entrance, routine examinations at the age of 8 and 12. This minimum, the subcommittee say, has been reached by all education authorities: "London, so far as we are aware, is alone in providing . . . an additional age-group examination, i.e., one in the term before that in which the children leave elementary schools." There are also of course the reinspection and special inspections, and it is calculated that on the average four-fifths of the children on the roll are seen by the school doctors for some purpose or other in the course of the year. Further, every child is seen some three times a year by a fully trained nurse who picks out any requiring special medical examination. "The danger of failure in bringing before the doctor any children whose condition needs it, is small." Last year, however, it was suggested that the times of routine inspections should be altered so as to fit in with reorganisation in the curriculum, and it was proposed that the inspections should be (*a*) at entrance; (*b*) at age 7, corresponding with the change in the status of infant to that of junior scholar; (*c*) at age 11, corresponding with the transfer from junior to senior school; and (*d*) preparatory to leaving school. This plan was held up because the head mistresses of infants' schools objected to two routine examinations coming within the children's life in the infants' department, and because there was some question whether, owing to the need for national economy, the fourth age-group should be retained. The deferring of inspection to the age of 8 means, however, that many possible cases of admission to special schools are not considered in detail till a year after the enforceable age for mentally and physically defective children. The final examination should, it is felt, be continued because it gives a last opportunity of discovering and remedying defects, because examination in the term before children become 14 has an important bearing on their future employment, and for other reasons. The special services subcommittee therefore proposed :—

> That, as from and including Jan. 1st, 1934, the medical inspection of children attending public elementary schools should be made (1) on entry, (2) at or about the age of 7 years, when retardation, dullness or mental defect shall be specially considered, (3) at or about the age of 11 years, and (4) during the last term but one at school; and that the Council be recommended accordingly.

This resolution was adopted by the education committee.

CORRESPONDENCE

VETERINARY EDUCATION

To the Editor of THE LANCET

SIR,—The leading article entitled a Projected Advance in Veterinary Education in your issue of July 15th cannot fail to be of interest to all concerned in medical and veterinary education; but it has been pointed out to me that it may easily convey a wrong impression to those who are not familiar with veterinary education as it exists. The reader may very readily suppose that Cambridge is the first British university to associate itself with veterinary education. This would be an error, for London, Liverpool, and Edinburgh all grant degrees in veterinary science, and have done so for a number of years; veterinary degrees were instituted in Edinburgh in 1911. A considerable and rapidly growing number of B.Sc. (Vet. Sci.) degrees have been conferred, and the list of graduates last month contained a D.Sc. in veterinary science.

I am not in a position to say what exactly the courses of instruction leading to veterinary degrees are in other universities, but in Edinburgh veterinary students are required to attend courses conducted by university medical and science professors and lecturers in the classrooms and laboratories of the University itself. The close association of students prophesied in your article therefore actually occurs.

It has also been suggested that the reference in your last sentence to an "unnatural frontier" may be translated as implying the existence of something that separates the medical and veterinary professions. In Edinburgh, at any rate, there has never been anything but cordial coöperation. This could be shown by the recital of many facts, but perhaps the following will suffice to justify the claim. It is very probable that the Royal (Dick) Veterinary College would not have been founded when it was had it not been for the inspiration, encouragement, and enthusiasm of John Barclay. For many years after the foundation of the College medical classes were thrown open to its students. When the College was incorporated by Act of Parliament and given an independent board of governors, Sir William Turner became the first chairman of the board and took a profound and vigorous interest in the College. The present vice-chairman, to whom the College owes much, is a member of the medical profession.

I am, Sir, yours faithfully,
O. CHARNOCK BRADLEY.

Royal (Dick) Veterinary College, Edinburgh,
July 18th, 1933.

⁂ We welcome Dr. Bradley's letter, with its valuable support of the general thesis upheld in our leading article and its emphasis on the excellent results that have in fact been obtained in Edinburgh. We had not, of course, supposed that any implication could be read into our comment on the Cambridge proposals, suggesting that other universities had played no part in the development of veterinary science. All who are interested know that such is not the case. The Cambridge proposals include features that, so far as we are aware, are novel—for instance, that the veterinary student should spend three years at the university in pre-clinical scientific studies culminating in the Natural Sciences Tripos and a B.A. degree. Dr. Bradley will, we are sure, agree that this approximation of the pre-clinical work of veterinary and medical students will tend "to tighten the links already forged." He will also, we think, agree that the developments of the last 20 years or so, tending to the integration of veterinary and medical science, could be extended over a wide field to the advantage of both professions.—ED. L.

THE FUTURE OF MEDICAL PRACTICE

To the Editor of THE LANCET

SIR,—Having spent 46 years in general practice, I gave up to it the whole of my working life. I think I may claim, therefore, to have acquired not only an intimate knowledge of its professional and social side, but to have had ample time and opportunity to form a just estimate of the calls that general practice makes on the intellectual capacity of its devotees; and what is more important, how far it is possible for any man, however conscientious, to meet these demands. My deliberate opinion is, that the more highly equipped a man is for the task and the more conscientious and thorough he is in his work, the more steadily and surely will the conclusion be borne in upon him that the labour he has been set to do is intolerable and beyond the wit of man to accomplish.

The fallacy underlying the admission of men and women to the medical profession lies in the assumption that those who satisfy the examiners in an academic test are competent to withstand the acid test of practice in all the subjects of the final examination. Candidates are licensed as general practitioners with the tacit assurance that they are competent to treat the thousand ills that flesh is heir to; and to undertake responsibility in every department of medicine. The public has a pathetic belief in the universality of the medical powers of the general practitioner; with what result, doubtless the case-books of consultants and the experience of medical defence associations could unfold.

The subjects of which the general practitioner is supposed to be a master are: medicine, surgery, obstetrics, laryngology, otology, rhinology, dermatology, neurology, pathology, therapeutics, ophthalmology; add some acquaintance with radiology, psychology and psychiatry, parasitology, and orthopædics; a nodding acquaintance with hygiene is of course desirable, and it is not at all infrequent to be questioned on tropical medicine. Knowing all these, he is bound to be a man of infinite variety and most excellent fancy. I am sure when the consultant reads this formidable list, he will be most profoundly discontented with his own capacities, and exclaim with Falstaff: "I'll have my brains ta'en out and buttered and give them to a dog for a New Year's gift."

A comparison with other professions will at once reveal the fact that general practice is quite unique in requiring that a man shall be fully competent to practise every branch of his profession. I use the words *fully competent* advisedly, for incompetence in any department may entail severe punishment. Surely it is not a harsh comment to say that those who are responsible for maintaining this state of affairs show lack of vision? What schoolmaster is asked to teach every subject in the school curriculum? What lawyer practises in every department of the law? What engineer ventures to proclaim that he is fully qualified to give a reliable opinion in every branch of his profession? Even in single subjects like mathematics, physics, and chemistry, we see an increasing tendency, owing to the vast expansion of knowledge, for men to limit themselves to portions.

But the general practitioner, like Bensusan's rustics, "keeps all on keepin' on."

How far the confidence reposed in the general practitioner (that he is competent to practise *all* departments of his profession) is justified, is well seen in the case of midwifery. The General Medical Council require attendance on 20 cases of midwifery, a course of lectures, and some clinical instruction. On this amount of training he is expected to face all the complications of labour that he may encounter—and they are not few. The Departmental Committee on Maternal Mortality and Morbidity would like him "to be able to conduct safely a case of labour, particularly a complicated case." The skill that would accomplish this, the committee rank as equal to that required to meet an emergency in minor surgery! In my opinion there is in this world no emergency to compare with a complicated case of labour; and nothing that so taxes the skill, courage, and endurance of the medical attendant. In the issue of THE LANCET for May 13th last, a very able and carefully considered article on "The Teaching of Obstetrics" was contributed by Prof. Munro Kerr. Prof. Kerr is under no illusion as to the sort of equipment in obstetrics with which the newly fledged graduate takes the road in general practice. The nett result of the present training in obstetrics that the general practitioner receives is that there has been no reduction in puerperal mortality and morbidity. Mr. J. A. Newrick, in a recent address to the National Association of Trade Union Approved Societies in Edinburgh, observed "that it was just as true to-day as it was in 1911, that it was four times as dangerous to be a mother as to be a miner."

General practice as we see it to-day is a relic which has come down to us through the ages. Those upon whom devolves the duty of preparing men for the medical profession have accepted the relic almost as a sacred trust. As the years have gone by and medicine has steadily and enormously increased her boundaries, every advance has been gratefully accepted and in due course pressed into the education of the doctor; without reflecting that the mass of knowledge has grown so huge that it is not within the capacity of any single brain to assimilate, still less to put it to practical application in the service of humanity. In spite of it all, the general practitioner still survives as a kind of universal purveyor.

Of recent years attempts have been made by post-graduate lectures and short courses of study to help the general practitioner. Doubtless all very good; but they leave the main problem untouched—viz., the impossible range of subjects that the general practitioner has to practise. If the present system is to continue, nothing short of six months' leave of absence for study will meet the case; say, every seven years. When the doctor returns after six months he may find his knowledge increased, but his practice seriously depleted and without the material on which to try recent advances in medicine.

Have I anything to suggest of a constructive nature? I have previously referred with great appreciation to Prof. Munro Kerr's article on the Teaching of Obstetrics. Prof. Kerr makes suggestions as regards medical teaching with which I very cordially agree, as I had myself arrived at precisely the same conclusions respecting what he calls "undergraduate study" long before I read his article. By the latter term, he would include instruction in all the subjects of the medical curriculum. In these subjects the student would have to pass an examination; but it would not entitle him to practise. Up *to this point* I am in absolute agreement with Prof. Kerr. The next stage Prof. Kerr calls "post-graduate study," based upon the assumption that the student is going to practise, *as at present*, all departments of his profession. Prof. Kerr would devote a year to this stage, during which the student would be compelled to hold resident appointments of four months each in medicine, surgery, and obstetrics, but would be excused the latter if he did not mean to practise midwifery. Should he change his mind, he would be obliged to hold the obstetric appointment. If the old-time model of general practitioner is to be retained, I venture to think that in the case of a young man starting practice and without means, it would be almost impossible for him to refuse midwifery. If a man has partners, it might be arranged; but I doubt if he could do so, were he on his own. Refusal to attend a patient in her confinement is usually very much resented. Even when getting on in life, it is very difficult for a man to shake free of midwifery. Most women will not take "no" for an answer.

Believing as I do that it is beyond the competence of any man to be a completely successful "general practitioner," I would suggest, like Prof. Kerr, that the year after "undergraduate study" should be devoted to clinical work. If a man intends to go into general practice, he should select two of the main subjects—viz., medicine, surgery, or obstetrics—and should be obliged to hold resident hospital posts in those subjects, say, for four months each. To these two chief subjects he might add two subsidiary subjects, in both of which he should be required to produce evidence of adequate clinical instruction.

There is no need for any upheaval in the machinery of examinations. The Conjoint Boards of the Royal Colleges have been in existence a great many years and carry out these very duties, but their influence has not been so supreme or decisive as I think desirable. But to give these boards complete authority would be a challenge to the universities, and their admirable and ancient medical faculties. Is all this to be scrapped? I ask, can anyone produce an instance outside medicine in which the possession of a university degree opens the portals of a profession? Is a man who is M.A., B.D., entitled to undertake the duties of a clergyman without further preparation? Can a man who is LL.B., or LL.D., practise as a barrister or solicitor on the strength of it? Is not one who takes an engineering degree required to pass the examination of some institute of engineering? Do not nearly all the educational authorities to-day insist, however brilliant a man's degree, that he shall undergo special training and pass an examination before he can be admitted a teacher? In my opinion a university degree is a thing apart. It is an academic distinction, and should not admit a man to the practice of his profession. Only in the case of medicine do the universities possess this unique power; and it probably goes back to the days when fitness to enter the profession depended on book learning.

In advocating the transference of the sole licensing power to the Royal Colleges, I am aware that I am sailing near that perilous sea of "the single portal," or inviting the retort that a State medical service would meet the difficulties. If the universities are to keep their medical privileges, they could adapt their degrees to the requirements of the directing body of studies. The Syndicate of the University of Cambridge has recently issued an amended report on the Medical Curriculum. The gist of the Syndicate's recommendation is that medical subjects, such as anatomy, physiology, pharmacology, chemistry, biochemistry, and bacteriology shall be brought within the scope of the Natural Science Tripos. The object of these changes is to build preclinical studies on a more assured scientific basis.

Now that a beginning has been made, it is much to be wished that the inquiry be pushed further and the future of the practitioner also determined. The question to be answered is, whether a medical man is any longer capable of acting as a sort of universal medical purveyor; or whether the time has come, when both in his own interests and those of the public, he should be restricted in practice to a limited number of medical subjects. That some reform is necessary in medical practice, I feel sure.

I am, Sir, yours faithfully,

Beckenham, Kent, July 8th, 1933. J. H. E. Brock.

BLOOD CHANGES FOLLOWING IRRADIATION

To the Editor of The Lancet

Sir,—I write to give my opinion that it is not possible to assess the value of the findings of Dr. R. H. Simpson and Dr. G. White Phillips, referred to in the tenth annual report of the British Empire Cancer Campaign, since as far as I am aware neither of these researches have yet been published. Furthermore, since the Radium and X Ray Protection Committee have under consideration the question of blood counts in radium and X ray workers, it would be unwise to prejudice the case by premature judgment. It is evident that Dr. Simpson stresses once again the wide variation in normal white cell counts and the danger, which is well recognised, of drawing conclusions from single counts giving figures just within or near to normal limits. This, of course, applies to persons exposed to radiation as well as to patients in general. Dr. White Phillips finds that patients having treatment with radium and X rays do not show blood changes. This is the usual experience except when patients are subjected to a long series of such treatments.

However, as already stated, it is necessary to await publication before giving judgment in detail, more especially as regards the value of blood examinations in persons subjected to radiations.

I am, Sir, yours faithfully,

J. C. Mottram.

Mount Vernon Hospital, Northwood, Middlesex,
July 22nd, 1933.

LACTIC ACID AS A FACTOR IN RHEUMATISM

To the Editor of The Lancet

Sir,—In your annotation of July 1st (p. 33) on the report of the committee that recently considered the problems of rheumatism, you would appear to favour the suggestion that, of the many hypotheses put forward to account for rheumatic disorders, lactic acid as a causative factor may now be ignored. This on the grounds that lactic acid was to be found as much in the normal as rheumatic subject.

Nevertheless I venture to submit that we are far from having done with this particular by-product of fatigue. I suggest that rheumatic complaints are universal because fatigue is universal, and that rheumatism in its chronic forms is less evident in countries wherein a warm, damp heat encourages free and daily skin action. Clinical evidence appears to be growing in volume that in the metabolism of fatigue lies that fine line between physiological acidosis and its pathological equivalent, rheumatism.

The determinant factor would appear to lie in a disparity between the elimination and creation of fatigue products, and in this the skin plays an all-important part. The whole problem, therefore, appears to demand investigation as to the results of lactic acid accumulations in the tissues. It seems highly probable that the acid-base imbalance induced by such accumulation affects the endocrine balance, thereby laying the subject open to the attack of any prevalent bacteria. Those who cannot contemplate any disease except in terms of bacteria might spend a fraction of thought in considering the types of soil upon which such bacteria as they may find appear to thrive.

Space forbids discursiveness on this fascinating problem, but I would just like to enter a mild protest against any facile assumption that lactic acid can be ignored in its relation to chronic rheumatism.

I am, Sir, yours faithfully,

London, W., July 19th, 1933. Drury Pennington.

"ENDOGENOUS" TUBERCULOUS INFECTION

To the Editor of The Lancet

Sir,—It has been suggested to me that my paper dealing with the Rôle of Infection for the National Association for the Prevention of Tuberculosis, an abstract of which appears in your issue of July 22nd, implies my acceptance of the theory that adult tuberculosis is a late and separate manifestation of a childhood infection.

I think I misused the word "endogenous" in my paper, and should like to make it clear that I do not accept the theory that adult tuberculosis is a separate manifestation of previous infection. My remark that the majority of cases of adult tuberculosis were the result of an endogenous spread from a lesion, was intended to imply that clinical tuberculosis does not necessarily follow a fixed latent period after exposure to infection as, for example, is the case with measles. If a patient fails to develop measles three weeks after exposure to infection one can release him from quarantine. In the case of tuberculosis, however, a lesion giving no symptom or clinical sign at the time may have formed and after remaining latent, perhaps for years, may break down, release tubercle bacilli into the blood or lymphatic stream, and cause clinical disease of essentially the same type as if there had been no stationary intermediate lesion.

In my opinion the patient who lives in contact with a so-called open case of tuberculosis receives continual and repeated small infections. Many of these completely heal; some, however, remain latent so that one frequently sees somewhat extensive fibrosis in the lungs of such contacts although they have enjoyed good health.

By "endogenous infection" I mean that some lesion has been present in the body, not necessarily since childhood, but for some time without producing symptoms, and it is from this infection that the disease develops. Since the lungs are the big filters of venous blood and disease is often blood borne, it is not remarkable that the lungs should be the organs so commonly infected. In some cases exposure to infection is followed by clinical disease without a definite latent period, and this I referred to as "exogenous infection." All infection originally must, of course, be exogenous.

I am, Sir, yours faithfully,

L. S. T. Burrell.

Chandos-street, Cavendish-square, W.,
July 25th, 1933.

SODIUM EVIPAN

To the Editor of The Lancet

Sir,—My experience with this product differs somewhat from that of the anæsthetics committee of the Medical Research Council (The Lancet, July 1st, p. 43). Is this to be explained by the different habits of those submitted to its effects or to a certain chemical change in the product itself when kept for some time in a subtropical region? I am in the habit of using the powder, following the weight-dose ratio, dissolved in 10 c.cm. of distilled water: if 7 c.cm. are given to start with and the patient comes round in about 15 minutes, the remaining 3 c.cm. will give a further anæsthesia of 15 minutes. Evipan has given me a good relaxed abdomen for Cæsarean section and appendix operation. A dose of 3 c.cm. intravenously is excellent to start sleep in some neurotics.

In one case to which I will briefly refer evipan proved to be the ideal anæsthetic.

A woman of 25, pregnant 32 weeks, suffered a fracture-dislocation of the lower thoracic and upper lumbar spine. The dislocation was reduced and the patient was put in the best position possible not to interfere with the pregnancy. Four weeks later, in spite of the utmost care, bed-sores developed on back and buttocks. There was incontinence of urine and fæces. Then signs of pneumonia were found at the right base and the patient seemed in extremis. I thought of saving the child at the expense of the moribund mother, and the choice of anæsthetic arose. Spinal anæsthesia was out of the question owing to the bed-sores; rectal anæsthesia was impossible because of incontinence; inhalation was unsuitable owing to the condition of the chest. Gas-and-oxygen were not at hand. I was left with the intravenous route. Evipan saved the situation; 7 c.cm. of the solution were sufficient for Cæsarean section which took about 7 minutes. After the operation the ileus and pneumonia improved quickly and the patient was able to leave the hospital with a living infant.

Evipan has given me satisfactory results in private practice when an anæsthetist was not available. At a minimal risk intravenous injection offers the surgeon all he needs for minor and some major operations.—I am, Sir, yours faithfully,

M. A. EL MONEIM EL DIWANY,
P.M.O., Shebin-el-Kom General Hospital, Egypt.
July 10th, 1933.

PROBLEMS OF SPINAL ANÆSTHESIA

To the Editor of THE LANCET

SIR,—I am much indebted to Prof. Pannett for his experimental work on spinal analgesia, but in his paper in your last issue he seems to imply that I am employing with percaine solutions a method which he had been using with 1 per cent. novocain—an impression I wish to correct.

The large-volume injection after withdrawing an equal amount of cerebro-spinal fluid was first tried, I believe, unsuccessfully by Le Filliâtre with dilute cocaine, and Prof. Pannett records in his paper of 1929 that he had repeated this method with novocain, also without good results. I claim no share in this useful work but merely the conversion of a rather complicated and unsuccessful method into a very simple and effective one by omitting the withdrawal of spinal fluid, proportioning volumes to spinal measurements and subsequent body posture in order to retain the percaine solution in position with any bias toward posterior roots. This I have termed "the method of direct injection," and regard it as a mere manœuvre in regional anæsthesia. The large-volume direct injection had been previously used, as far as I know, with simple fluid, only in the experimental animal, but I invite correction. Prof. Pannett has made no mention of it previous to my first communication. The test of success is the performance of a partial gastrectomy without general anæsthesia, and I would emphasise Mr. Norman Lake's procedure of blocking the vagus—a valuable addition to what is, for gastric work, an essentially imperfect method.

Much of my work at Charing Cross Hospital is done with ampoules of percaine returned by other institutions to the makers on account of some fancied defect; but while I do not wish to diminish this relief to the hospital finances, it is perhaps worth noting that both chemical analysis and clinical tests show that solutions more than three years old have undergone no change whatever, and that tropical conditions and repeated boiling have no effect on them. It is clear therefore that any failures are likely to be due to faulty injections or too low a concentration in a resistant patient. A 1 per cent. solution of novocain in my experience serves only for a short operation, but a direct injection up the spine of a competent solution leaves very little room for theories.

Pulsation as a cause of spread I brought forward at Eastbourne in 1931 (Brit. Med. Jour., 1931, ii., 488); I believe its main origin is the pulsation of the brain and the large arteries at the base, but I do not think it is a major factor in spread.

I am, Sir, yours faithfully,
London, W., July 23rd, 1933. W. HOWARD JONES.

THE ROYAL SOCIETY DISCUSSION ON "EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS"

To the Editor of THE LANCET

SIR,—Dr. J. A. Murray's letter in your issue of July 22nd, in reply to my own of July 8th, shows that my *caveat* against the undue and exclusive exaltation of the experimental method in cancer research was even more necessary that I had realised. Dr. Murray avoids the issues which my letter raised—issues entirely scientific and in no way concerned, as he appears to imply, with the unimpeachable administration of the Imperial Cancer Research Fund. He dismisses the lymph-stasis theory of the origin of cancer as a mere hypothesis unworthy of his serious attention. Here let me say that he will hear much more of it during the next few years. He does not attempt to meet any of my criticisms, and particularly he fails to explain why the experimentalists have not troubled to study the finer structure of their chosen experimental material, the skin of the mouse. He appears to think that his personal views on cancer involve the policy and prestige of the institution he serves with such distinction, and to interpret reasoned criticism of them as an attack upon that institution. He thereupon gracefully retires behind his committee and refers me to them with the air of a mediaeval bishop remitting a heretic to the civil power.

Dr. Murray's attitude is a remarkable and I think a regrettable one, showing his inaccessibility to observational as contrasted with experimental evidence. To evidence not experimental Dr. Murray presents a closed eye, camouflaged by a telescope of ironic recognition. His attitude is the more surprising since, as he points out, the Imperial Cancer Research Fund exists for the study of cancer in the human race as well as in animals—and in man experiment is barred.—I am, Sir, yours faithfully,

W. SAMPSON HANDLEY.
Harley-street, W., July 25th, 1933.

HEART DISEASE IN SCARLET FEVER

To the Editor of THE LANCET

SIR,—In the annotation in the issue of July 15th which describes Dr. J. Wickstrom's electro-cardiographic findings in scarlet fever, you discuss the ætiology of the cardiac lesions complicating this disease and their relationship to rheumatic fever.

As you say, the clinical features of these lesions are identical with those of rheumatic carditis, a fact which has been well shown by Dr. F. J. Poynton (Quart. Jour. Med., October, 1909). You conclude your annotation with the statement that since the histological picture of rheumatic carditis is considered to be specific, "a pathological study appears to be required for answering the question." May I remind you that Dr. Carey Coombs in his monograph on "Rheumatic Heart Disease" described the pathological changes found in the hearts of two patients dying from carditis following scarlet fever. "In both these children the cardiac lesions were precisely those of cardiac rheumatism. The inflammatory process was proliferative in type, and was distributed through the *endocardium, pericardium, and myocardium*; it arose in and around blood-vessels, and in the heart muscle it was concentrated into those highly characteristic foci the so-called 'submiliary nodules.' "—I am, Sir, yours faithfully,

C. Bruce Perry.

University Centre of Cardiac Research, General
Hospital, Bristol, July 35th, 1933.

Mr. W. D. Bushell writes: "In the first paragraph of my letter entitled Poor Law Sick Wards, *on p.* 209 of your last issue, I suggest that three groups may each consist of 40,000 persons. I had intended to suggest that they were likely to consist of about 40,000, 80,000, and 80,000 persons respectively. My error, however, hardly affects my argument."

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Road and Rail Traffic: Hours and Conditions

In the House of Commons on Wednesday, July 19th, the Road and Rail Traffic Bill, as amended in Standing Committee, was considered on report.

Mr. Tom Smith moved a new clause providing that the references to hours for rest contained in Section 19 of the Road Traffic Act, 1930, should be deemed to mean hours for rest away from the vehicle. He said that obviously when the House of Commons agreed to Section 19 of the Act of 1930 they intended that ten consecutive hours of rest should be allowed to the driver of a vehicle, and in his opinion they certainly did not intend that the driver should sleep on the vehicle. The section had been evaded and violated, and in many cases completely ignored by certain employers.

Mr. Kirkwood seconded the new clause. If it was imperative that vehicles should be kept up to a certain standard it was even more necessary that the drivers should always be in a cool and calculating condition and not flurried, excited, or tired.

Sir F. Sanderson urged the Minister to take some measures to cover the point raised in the clause.

Lieut.-Colonel Headlam, Parliamentary Secretary to the Ministry of Transport, said that everyone was anxious that the provision of ten consecutive hours of rest in a period of 24 hours calculated from the commencement of any period of driving should be enforced. But he thought that the law as it stood was effective if only it could be enforced. He had every reason to believe that this Bill would greatly facilitate the improvement of the conditions of drivers. When it was a condition of a licence that reasonable hours should be observed, and when a log book was kept recording the journeys made, bad owners who overworked their employees would be far less inclined to run the risk of being found out. In the circumstances he could not accept the clause.

After further debate,

Mr. Oliver Stanley, Minister of Transport, said that the clause as drafted was impossible, but there were possibilities along another line of making the rest period one during which the driver must be beyond the control of his employer. He would consider whether an amendment could be inserted in the Bill at a later stage to meet the point.

The new clause was withdrawn.

Mr. G. Hall moved a new clause providing that the driver of a goods vehicle should be specially licensed. He asked that this Bill should apply the same tests so far as goods vehicles were concerned as were applied to passenger vehicles under the Road Traffic Act of 1930.

Mr. Lovat-Fraser supported the new clause.

Mr. Oliver Stanley said that in asking the House to reject the new clause he was not shutting out the possibility in the near future of legislation which would go beyond this proposal. A careful analysis was being made of the causes of fatal accidents, and some of the results would, he hoped, be published soon. At the end of this year he would examine the classification of these accidents, and then for the first time it would be possible to say whether any substantial proportion of them arose from the sort of mistakes on the part of drivers which could be corrected by making them pass a test before getting a licence.

The new clause was rejected by 268 votes to 38.

The report stage of the Bill was concluded.

On Friday, July 21st, the Bill was read the third time by 163 votes to 25.

Royal Assent

In the House of Lords on July 18th the Royal Assent was given to the Cancer Hospital (Free) Act.

On Thursday, July 20th, in the House of Lords the Local Government and Other Officers' Superannuation (Temporary Provisions) Bill was read a second time. The Manchester Royal Infirmary Bill was read the third time and passed.

In the House of Commons on Monday, July 24th, the Lords' amendments to the Manchester Royal Infirmary Bill were considered and agreed to. The Samaritan Free Hospital for Women Bill was read the third time.

In the House of Lords on Tuesday, July 25th, the Road Traffic (Compensation for Accidents) Bill as amended by a select committee passed through committee.

The Local Government and other Officers' Superannuation (Temporary Provisions) Bill also passed through committee and was read the third time and passed.

HOUSE OF COMMONS

THURSDAY, JULY 20TH

Health Insurance Benefits

Mr. Lawson asked the Minister of Health if he was aware that large numbers of unemployed who were subject to the operation of the National Health Insurance and Contributory Pensions Act, 1932, were anxious as to what their position was under that Act, and that approved societies were not making the position plain; and whether he would inform those concerned, through the labour exchanges in conjunction with the Minister of Labour, what steps could be taken to ensure the continuance of benefits under the National Health Insurance Acts.—Sir E. Hilton Young *replied*: A notice with regard to arrears due to unemployment is being sent to every insured person affected, and posters informing insured persons of their right to redeem arrears without waiting until they receive this notice are displayed in every employment exchange. Any insured persons who are unable to secure employment and do not exercise their right to continue as voluntary contributors will be informed by their societies of the date of cessation of their insurance.

Maternal Mortality

After a question by Mrs. Runge on the increase and distribution of maternal mortality, Mr. Kirkwood asked the Minister of Health whether it was not the case, as stated in the *Daily Herald*, that maternal mortality is a standing disgrace to civilisation, and that this Government in making "cuts" will make conditions worse instead of making them better and alleviating the situation.

Sir E. Hilton Young: No, Sir. That is an allegation which is absolutely without any foundation whatever in fact. I am delighted to be provided with this opportunity to give it the most categorical denial. (Cheers.) On the contrary, the constant policy of His Majesty's Government is to press ahead with the development of the maternal services.

Enamel Ware in Public Institutions

Mr. Joel asked the Minister of Health whether the use of enamel ware was being officially discouraged for use in public institutions; and what was being recommended in its place.—Sir E. Hilton Young replied: I have not thought it necessary to discourage the use of enamel ware in public institutions, but I have issued a general warning that now that the use of antimony in place of tin has become common in the manufacture of enamel glazes, enamelled hollow ware vessels obviously intended for other purposes may be dangerous if used for the preparation or storage of food and drink.

Lieut.-Commander Agnew: Will my right hon. friend circularise local authorities with a view to more tin being used?

Colonel Wedgwood: No, more pottery.

Sir E. Hilton Young: I have already circularised local authorities as to the danger of the misuse of enamel ware with antimony in the glaze, and I should hesitate to recommend preference for one or other form of substance.

Maternity and Child Welfare

Sir Francis Fremantle asked the Minister of Health the numbers, respectively, of county councils, county borough councils, and other borough and district councils providing services under the Maternity and Child Welfare Act, 1918; and how many of such councils exercised the power to pay the midwife's fee in the case of necessitous mothers whose confinement took place in their own homes.—Sir E. Hilton Young replied: The numbers asked for in the first part of the question are, for England and Wales, 61 county councils, 83 county borough councils, and 289 other borough and district councils. As regards the last part of the question, the latest information available to my department relates to the year 1932. At the end of that year 16 county councils, 43 county borough councils, and 46 other borough and district councils were exercising the power referred to.

Sir F. Fremantle: Is it not clear that the majority of local authorities are not exercising these most necessary and beneficent measures, and is it not a fact that the voluntary societies concerned have investigated this matter and have shown that it is largely due to the ignorance of these authorities of the fact that they have these powers, and will the right hon. gentleman see that they do know and exercise these necessary powers?

Sir E. Hilton Young: I do not think that the deduction that the majority of local authorities are making inadequate use of these powers would be accurate.

Slum Clearance

Mr. Maxton asked the Minister of Health if he could give figures, to the latest date, showing what progress had been made with his campaign against slums in the last 12 months.—Sir E. Hilton Young replied: During the 12 months ended June 30th last local authorities in England and Wales submitted to the Minister resolutions declaring 406 areas, comprising 7443 houses, to be clearance areas; 293 clearance and compulsory purchase orders affecting 6910 houses were submitted for confirmation during this period, and 241 orders affecting 5582 houses were confirmed; in addition 362 houses were purchased by agreement.

MONDAY, JULY 24TH

Grants to Distressed Areas

Lieut.-Colonel Sandeman Allen asked the Minister of Health whether, when allocating the £500,000 to the distressed areas, he would take into account the number of displaced national health insurance contributors, owing to non-prolongation, and the consequential additional drain upon the poor-law authorities in the distressed areas.—Sir E. Hilton Young replied: As indicated in the reply given on July 18th, the numbers of persons in the several areas who will cease to be insured under the National Health Insurance Acts at the end of the present year cannot be known for some time, but I have no reason to think that the introduction of this factor, if it were practicable, would have any material effect on the allocation of the grant.

Slum Clearance in Scotland

Mr. Kirkwood asked the Secretary of State for Scotland how many insanitary houses there were in Irvine; what was the officially estimated shortage of houses in the burgh; and, seeing that the Department of Health had ordered the town council to proceed with the building of 200 houses under the 1930 Act, what action would be taken by the Department of Health to compel this town council to fulfil its obligations with regard to rehousing.—Mr. Skelton replied: Following upon the passing of the Act of 1930, the town council of Irvine estimated that the total number of houses needed, including houses required to replace houses unfit for human habitation, was 400. Since then the local authority have completed 188 houses and, as a result of the local inquiry which was held by order of the Department of Health, have resolved to proceed forthwith with the erection of 200 houses under the Act of 1930. A further statement regarding the housing position in the burgh will fall to be submitted by the town council at the end of the present year, and my right hon. friend will then be in a position to judge what further action, if any, is required on the part of the Department of Health.

Health Insurance and Medical Benefit

Mr. Thorne asked the Minister of Health the number of national health insured persons who had been deprived of sickness and maternity benefit since January last; whether such persons applied to public assistance committees for medical assistance; and, if so, whether they were subject to the means test.—Sir E. Hilton Young replied: The number of persons who ceased to be entitled to cash benefits under the National Health Insurance Scheme on Dec. 31st, 1932, was approximately 70,000. These persons are still entitled to medical benefit under the Act.

Mr. Thorne asked the Minister of Health the total amount deducted from the contributions of national health insured persons per annum for the administrative costs of insurance committees and the cost of such committees per annum; whether there was a credit balance in this account and, if so, for what purpose the money was allocated; and whether he would consider the advisability of continuing medical benefit to unemployed insured persons from this fund.—Sir E. Hilton Young replied: Under Section 2 of the National Health Insurance Act, 1926, a sum not exceeding 13*s*. per member per annum is payable by approved societies in respect of the provision of medical benefit, and out of this sum a sum not exceeding 6*d*. per member per annum is available for the administrative expenses of insurance committees. During the last few years the actual amount spent by insurance committees on administration has been slightly less than the product of the 6*d*. available, but in so far as the cost of the service is less than the maximum sum of 13*s*. per member, any such unexpended amount falls to be taken into account in determining the future charges to be made to approved societies. I have no power to utilise any such balance for the provision of medical benefit for persons who cease to be insured under the Acts.

The Indian Medical Service

Sir Ernest Graham-Little asked the Secretary of State for India if he would reconsider the position with regard to pensions of officers in the Indian Medical Service arising from his declaration on March 7th, 1932, that the pensions of the officers of the Indian services were not guaranteed by the British Government, which nevertheless engaged and employed these officers; and if he would consider in this relation the precedent by which the salaries of the Secretary of State for India and of his under-secretaries, although chargeable upon the revenues of India, were especially safeguarded by clauses in the Government of India Act, 1919, and Amendments, 1924, which provided that they might be paid out of moneys provided by Parliament.—Sir S. HOARE replied: All members of the regular Indian services, both military and civil, whether or not they hold H.M. commission, are in the same position as regards the payment of pensions in respect of their Indian service. The position is that these pensions have been in the past and are now charged to Indian revenues alone; and it is proposed that they should continue to be so charged under the new constitution. I can add nothing in this respect to the statement I made on March 7th, 1932. As regards the latter part of the question, the salaries of the Secretary of State and the Parliamentary Under-Secretary of State for India are not chargeable upon the revenues of India, but are a direct charge upon funds voted by Parliament. This change was made in 1919, not as a measure of safeguarding due payment, but because it was felt to be anomalous that the salaries of these Ministers, who are responsible to Parliament, should not be defrayed from moneys voted by Parliament.

TUESDAY, JULY 25TH

Pensions to Aged Miners

Mr. GODFREY NICHOLSON asked the Secretary for Mines whether he was aware that the Northumberland and Durham miners' permanent relief fund had been compelled to cease the payment of pensions to aged miners owing to the depressed state of the industry; and whether he would take steps to enable the Miners' Welfare Fund to make grants to this and similar funds.—Mr. ERNEST BROWN replied: The answer to the first part of the question is Yes. With regard to the second part, the Miners' Welfare Committee has been advised that such an object is not within the scope of the fund as at present constituted. Amending legislation would, therefore, be required to make grants for such a purpose permissible. My hon. friend is no doubt aware that the recent Departmental Committee of Inquiry into the Miners' Welfare Fund advised against the extension of the scope of the fund in this direction, both as a matter of principle and also on actuarial grounds, even if the output levy were to continue at the penny rate. As I announced last April, it has been decided to introduce a Bill at an early opportunity to reduce the amount of the levy to one halfpenny, and in those circumstances I cannot see any possibility of extending the scope of the fund to pension schemes.

Air Ambulance Service in Scotland

Mr. KIRKWOOD asked the Secretary of State for Scotland whether he had considered the communication sent to him from the Midland and Scottish Air Ferries, Limited, with regard to the proposal for an air ambulance service between the Western Isles and Glasgow for the conveyance of urgent cases to the city hospitals; if he was aware that the company were prepared to coöperate with the Department of Health and the St. Andrew's Ambulance Association in any scheme which would facilitate the removal of urgent cases to the hospitals; and if he would call a conference of the parties concerned with a view to the establishment of the service.—Mr. SKELTON, Under-Secretary of State for Scotland, replied: The answer to the first part of the question is in the affirmative. As regards the remainder of the question, the Department of Health propose to arrange a meeting with representatives of the Midland and Scottish Air Ferries, Limited, to discuss the experience which the company have already gained in operating an air ambulance service in the Highlands and Islands.

Death-rate in Slums and Healthy Areas

Mr. LOUIS SMITH asked the Minister of Health whether his attention had been called to the report of the medical officer of health for Stockton-on-Tees that the average death-rate of a population transferred from slum areas to new hygienic conditions showed an increase; and whether his department possessed information substantiating this conclusion or the reverse.

Mr. SHAKESPEARE, Parliamentary Secretary to the Ministry of Health, replied: This report has been fully considered, and as promised in his reply of May 11th my right hon. friend has caused inquiries to be made in other areas. These inquiries tend to show that the conditions reported in Stockton-on-Tees are exceptional. The experience in other towns where inquiries have been made shows that slum clearance and rehousing are normally associated with a substantial improvement in health, particularly in the case of children.

Housing in Liverpool

Mr. LOGAN asked the Minister of Health if he was aware that Liverpool needed at once 10,000 to 15,000 houses at an inclusive rental of 10*s*. to 12*s*. per week and 2000 additional houses per year; whether he had considered the resolution submitted to him of a conference of house builders at Liverpool repudiating the possibility of houses being built in that area at economical rents within the capacity of the working classes without reasonable revision of the restriction on density; and what action, if any, he intended to take in regard to restricting the density and assisting the Liverpool authorities to get out their own plans to meet the housing shortage.—Mr. SHAKESPEARE replied: My right hon. friend is aware of a press statement to the effect of the first part of this question. My right hon. friend has received a copy of the resolution referred to, and he is informing the city council that he is willing to consider any reasonable proposals on the subject of density they may think it desirable to submit to him.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt.-Comdr. (D) F. W. Paul is placed on the retd. list with the rank of Surg. Comdr. (D).

Surg. Comdr. A. G. McKee is placed on the retd. list at his own request.

The following appointment is notified: Surg. Lt. S. [illegible]. G. Pimm to *Pembroke*, for Chatham Hospital.

ROYAL NAVAL VOLUNTEER RESERVE

Proby. Surg. Lt. R. Cormack to be Surg. Lt.

ARMY MEDICAL SERVICES

Col. S. M. W. Meadows, late R.A.M.C., having attained the age for compulsory retirement, is placed on retd. pay.

Lt.-Col. J. H. Campbell, R.A.M.C., to be Col.

ROYAL ARMY MEDICAL CORPS

Maj. C. McQueen to be Lt.-Col.

RESERVE OF OFFICERS

Maj. M. F. Foulds, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY

Capt. B. G. Scholefield, supern. for serv. with Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C., resigns his commn.

Capt. W. J. C. Watt to be Maj.

Lt. M. Ellis is secd. under para. 135 T.A. Regs.

Lts. A. T. B. Dickson and W. W. Crawford to be Capts.

B. G. Maegraith and R. A. P. Gray to be Lts.

INDIAN MEDICAL SERVICE

Lt. E. M. Sewell to be Capt.

Lt. (on prob.) S. W. H. Askari to be Capt. (on prob.).

Capt. N. L. Sah relinquishes his temp. commn.

ROYAL AIR FORCE

Flying Offr. J. F. Ziegler is promoted to the rank of Flight Lt.

UNIVERSITY OF GLASGOW.—The University Court has appointed Dr. Donald McIntyre to the Royal Samaritan lectureship in gynæcology. Dr. McIntyre is surgeon to the Royal Samaritan Hospital for Women and the Royal Maternity and Women's Hospital.

MEDICAL NEWS

University of London

At a meeting of the Senate on July 19th Dr. Robert Alex. Webb was elected to the university chair of pathology tenable at the London School of Medicine for Women as from Oct. 1st, 1933.

Dr. Webb graduated as M.D. at Johns Hopkins University, Baltimore, in 1917, and took the English conjoint diploma in 1921. After experience as demonstrator in the University of Manchester he went to Cambridge, where he has been university lecturer in pathology since 1929. He holds the degree of Ph.D. Camb. His contributions to the pathological journals are chiefly in the field of immunology and anaphylaxis.

Dr. W. E. Herbert, since 1931 director of the department of conservative dental surgery at Guy's Hospital medical school, was appointed to a university readership in conservative dental surgery tenable at the school.

At recent examinations the following candidates were successful:—

M.S.

Branch I. (Surgery).—J. T. Fathi (University medal), London Hosp.; B. M. Fonseka, Middlesex Hosp.; and A. G. Harsant and S. J. Scurlock, London Hosp.

University of Wales

At recent examinations the following candidates were successful:—

M.D.

Rolf Ström-Olsen and J. M. Thomas.

M.CH.

T. G. I. James.

M.B., B.CH.

Dillwyn Evans, J. R. E. James, D. J. Jones, G. P. Jones, R. J. Phillips, Gwyneth P. Roberts, J. D. Spillane, H. A. Thomas, and Alice M. Williams.

Royal College of Physicians of Edinburgh

A quarterly meeting of the College was held on July 18th, with Dr. Robert Thin, the president, in the chair. Dr. Douglas Begbie McCrie Lothian (Larbert), Dr. Alfred David Gorman (Blackburn), and Dr. William Ritchie Russell (Edinburgh), were introduced and took their seats as Fellows.

Dr. John Fearby Campbell Haslam (Barbadoes), Dr. Eric Farquharson Dott (Edinburgh), Dr. William Leslie Burgess (Dundee), Dr. Sydney Alfred Smith (Edinburgh), and Dr. Ranald Malcolm Murray-Lyon (Edinburgh), were elected to the Fellowship.

University of Edinburgh

On July 19th the following degrees and diplomas were conferred:—

M.D.—*J. M. Anderson, J. le F. C. Burrow, ‡C. A. Calder, *I. A. G. L. Dick, †A. R. *Gilchrist*, *George Gordon-Napier*, May Gower, *D. P. Lambert, D. K. L. Lindsay, *J. P. M'Gibbon, *R. L. H. Minchin, Ruth M. Monro, William More, R. P. A. Rigg, C. K. Robertson, R. A. T. Rouse, Henry Shaffer, Dorothy M. Taylor, J. S. W. Westwater, and Jai Yunibandhu.

† Awarded Gold Medal for Thesis.
‡ Highly commended for Thesis.
* Commended for Thesis.

M.B., Ch.B.—* Mary E. Alexander, E. S. Amzalak, J. E. Armah, G. L. Ashford, A. H. Banks, C. C. Barclay, P. C. Barkla, * D. M. F. Batty, M. S. Behardien, * Alexander Brown, W. L. Brown, M. A. Byt [illegible] th Cameron, J. R. Campbell, Hilda I. [illegible] G. F. K. Chalmers, B. S. Chowdhury, [illegible] y, J. W. Crawford, J. H. Croom, P. H [illegible] son, D. N. Dobbie, T. E. Elliot, R. A. [illegible] R. Forsyth, J. P. Gardiner, M. M. [illegible] W. D. Goodall, C. L. Grant, F. S. [illegible] D. Hanham, G. V. Harry, F. D. Hart [illegible] Henderson, Walter Henderson, F. J. C. [illegible] David Hittleman, Howard Hogan, D. R. Huggins, Margaret W. Jenkins, D. M. Keir, A. D. Latham, Edith Laurie, J. W. Leith, Lester Levingson, W. A. Liston, J. C. Lowe, Freda M. L. Lucas, G. B. Ludlam, G. R. Lunn, R. D. Lyon, D. D. Macdonald, B. F. Macfarlane, Alexander M'Gregor, W. M. M'Intyre, Ian S. MacKenzie, Neil Macmichael, Christina M'D. M'Taggart, Duncan Malloch, Joyce E. Marshall, S. H. Martin, W. R. Maxwell, Lilian W. May, E. W. Melvin, Mary F. Miller, R. G. Miller, Evelyn E. Mitchell, Robert Mitchell, Mary Moffett, W. A. Morton, D. L. Murray, Honora C. Osborn, T. S. Outerbridge, Marjory M. Pearson, R. S. Peill, J. B. Perrin, J. P. Philp, W. A. Ramsay, J. F. Rattray, R. W. Rattray, J. D. Reid, Isabella M'K. Robertson, Lucinda R. Roden, Lily C. Rossouw, G. A. Roulston, C. F. Roza, J. J. F. Russell, Winifred I. Russell, N. F. Sawers, Jack Saxton, J. G. Sclater, G. I. Scott, D. F. S. Shaw, J. A. W. Shearer, Alan Shelton-Agar, G. G. Sherriff, J. B. Shield, M. C. Stander, R. H. Stevenson, G. E. S. Stewart, A. D. Stoker, A. L. Stuart, Agnes B. Sutherland, Grace Sutor, Hon-fan Tai, H. P. Tait, Mary Tan, Kum-Swan Tay, A. W. S. Thompson, Alexander Thomson, Emily S. O. Thomson, Scott Thomson, D. J. Waterston, Mary Watson, A. V. Wells, G. D. Wight, T. I. Wilson, R. M. Young, Rasheed Zakariyya, M. S. Zan, and W. A. Moore.

* Passed with Honours.

D.P.H.—R. O. Cairns, A. J. Campbell, Lillie S. Dickson, H. P. S. Gillette, W. A. Gomes, A. R. [illegible] I. O. Kennedy, F. M. Khan, Rosa M [illegible] Gurbuxsh Singh, Ruby J. B. Slat [illegible] Susannah S. Murdoch, E. J. Ratnayal [illegible] and John Macqueen.

D.T.M. & H.—Minnie Gosden, D. P. Lambert, and A. R. Sikund.

Diploma in Psychiatry.—R. G. M'Innes.

Diploma in Radiology.—E. L. Godfrey and Georgina M. H. Somerville.

The following awards were made: Thesis gold medallist, A. R. Gilchrist, M.D.; Syme surgical fellowship, D. I. C. Finlayson, M.B.; Goodsir memorial fellowship, Robert Walmsley, M.B.; Freeland Barbour fellowship, R. J. Kellar, M.B.; Ettles Scholarship and Leslie gold medal, Alexander Brown, M.B.; Murchison memorial scholarship in clinical medicine, D. M. F. Batty, M.B., and Alexander Brown, M.B. (equal); Mouat scholarship in the practice of physic, Alexander Brown, M.B.; Buchanan scholarship in midwifery and gynæcology, B. F. Macfarlane, M.B.; James Scott scholarship in midwifery and gynæcology, D. M. F. Batty, M.B.; Beaney prize in anatomy and surgery, D. M. F. Batty, M.B.; Conan Doyle prize, Winifred I. Russell, M.B.; Annandale gold medal in clinical surgery, W. A. Liston, M.B.; Murdoch Brown Silver medal in clinical medicine, Alexander Brown, M.B.; Royal Victoria Hospital tuberculosis trust gold medal, Duncan Malloch, M.B.; Thomson memorial medal in child life and health, A. B. Wallace, M.B.; Scottish Association for Medical Education of Women prize, Mary E. Alexander, M.B.; Dorothy Gilfillan memorial prize, Agnes B. Sutherland, M.B.; Wightman prize in clinical medicine, R. J. Henderson, M.B.; Pattison prize in clinical surgery, J. G. Sclater, M.B.; Sir Robert Jones prize in orthopædic surgery, J. G. Sclater, M.B.

The Cameron prize in practical therapeutics has been awarded to Dr. G. F. Dick, professor of medicine in the University of Chicago, and Dr. Gladys H. Dick, in recognition of their discoveries regarding the ætiology, prophylaxis, and treatment of scarlet fever.

Manchester Royal Infirmary

The Old Residents' Club will hold a meeting and dinner on Oct. 7th. Further particulars may be had from the secretary of the club at the Manchester Royal Infirmary.

Royal Sanitary Institute

Mr. Stanley H. Badock, pro-chancellor and treasurer of the University of Bristol, will be the president of the next congress of this institute, which is to be held at Bristol from July 9th to 14th, 1934.

University of Birmingham

Dr. Henry Percy Gilding, has been appointed to the chair of physiology in succession to Prof. I. de B. Daly.

Dr. Gilding is at present senior lecturer in physiology at University College, London, and lecturer in clinical physiology at St. George's Hospital. He graduated in medicine at Oxford in 1927, having received his clinical education at St. Bartholomew's Hospital, where he was Kirke's [illegible] in clinical medicine. Subsequently [illegible] Rockefeller Institute, New York, and [illegible] maintenance in the *Journal of Exper* [illegible] assistant honorary secretary of the Physiological Society and editor of its *Proceedings*.

Dr. Keith Stewart Thompson has been appointed full-time lecturer in general pathology to dental students.

Royal College of Surgeons of Edinburgh

At a recent meeting of the College, Mr. J. W. Dowden, the president, in the chair, the following 26 successful candidates out of 77 entered, who passed the requisite examinations between March 16th and 25th, were admitted as Fellows:—

Ramiah Doraswamy Aiye [illegible]; William John Brandon, M.B. Edin.; John [illegible] Glasg.; Richard Caldera, L.M.S. Cey [illegible] Harwood Carlisle, M.B. Sheff.; Hugh [illegible]; Henry Talbot Cox, M.B. Camb.; [illegible] M.B. Calcutta; Harold Stuart [illegible] anit ba; Adam Hamilton Harvie, M. [illegible] Hogan, M.B. Adelaide; James Sneddon Jeffrey, M.B. Edin.; Robert Dudley Jones, M.B. Brist.; John Samuel Kessell, M.B. Adelaide; Gerrit Johannes Lamprecht, L.R.C.P. Edin.; Robert Gordon Butler Lusk, M.B. N.Z.; Ronald Graeme Macbeth, M.B. Oxf.; William Sommerville Mack, M.B. Glasg.; John Bernard Marinan, M.B. Q. U., Belf.; Arthur Alfonse Miller, M.R.C.S. Eng.; James Joseph O'Donoghue, M.R.C.S. Eng.; Alexander Noble Roxburgh, M.B. Edin.; Thomas Gilbert Scott, M.R.C.S. Eng.; Stephen John Scurlock, M.D. Lond.; Aloysius *Daly* Smith, M.B. Adelaide; and Neville Anthony Albert van Buuren, M.B. Lond.

University of Liverpool

Mr. Alexander Robertson, Ph.D., reader in biochemistry in the University of London, at the London School of Hygiene and Tropical Medicine, has been appointed to the Heath Harrison chair of organic chemistry.

Queen's University of Belfast

The John Dunville research fellowship in experimental pathology is offered to a registered medical practitioner of British nationality. Our advertisement columns contain further details.

University of Cambridge

Dr. G. L. Taylor, of Gonville and Caius College, has been elected to a further tenure of two years of the John Lucas Walker studentship for original research in pathology.

Application is invited for the George Henry Lewes studentship, tenable in the physiology school. Particulars will be found in our advertisement columns.

The British Pharmaceutical Conference

The banquet of this conference was held at Grosvenor House on July 25th, when Dr. C. H. Hampshire, the chairman, presided over an assembly of over 700. The toast of the Pharmaceutical Society of Great Britain was proposed by Mr. Douglas Hacking, M.P., Parliamentary Under-Secretary of State for the Home Department. Speaking of the Pharmacy and Poisons Act, he said he did not know whether his present audience would like him to boast of it or to apologise for it, but at any rate they would approve of Part I. of the Act. From the beginning of next year the Pharmaceutical Society would be a self-governing body with an organisation similar to that of the General Medical Council. He could not yet give the date when the provisions in the second part of the Act would come into operation, but arrangements for the Poisons Board were well in hand, and he hoped that the board would begin work in the autumn. Mr. John Keall, president of the Society, replied to the toast. He was glad that the difficulties in connexion with the Pharmacy and Poisons Act had been overcome, and that cordial relations existed between the Society and the Home Office. He referred to considerable changes in the educational policy of the Society and to its removal to new headquarters in Brunswick-square. The building would not be palatial but would be adapted to the present widespread activities of the Society. Prof. J. F. Thorpe, F.R.S., president of the Institute of Chemistry, in proposing the toast of the British Pharmaceutical Conference, said that pharmacy was closely linked to organic and to biochemistry—in fact, pharmacy could be termed applied biochemistry. He held out hopes not only that the nature of all the vitamins would be ascertained but that it would be possible to determine their structure and prepare them synthetically—perhaps even, as had been the case in synthetic preparations of other natural products—in a more suitable form for administration. Dr. C. H. Hampshire, in reply, said that in the 70 years of the existence of the conference much had been accomplished, and a tradition of useful service had been established. The scientific papers communicated to the conference year by year had been published in a series of year books on pharmacy which began in 1870. Research work communicated to the conference was, as a rule, of the kind directed to the solution of some practical scientific problem. The facts which are brought out were, so to speak, the bricks and mortar from which pharmacopœias and other authoritative works are built. The conference stood for what might be called the altruistic side of pharmaceutical life. It provided for and encouraged the science of pharmacy for its own sake. Lord Leverhulme, vice-chairman of the London committee, in proposing the guests, said that it was appropriate that the last conference of this year was one on pharmacy, which could be expected to provide tonics for jaded members before the holiday season. Dr. J. J. Hofman, president of the International Pharmaceutical Federation, spoke cordially of the welcome the foreign delegates had received and of their hopes of revisiting London when the next conference was held there ten years hence.

Scottish Conjoint Board

At recent examinations by the Board of the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow, the following candidates were successful :—

L.R.C.P., L.R.C.S., AND L.R.F.P. & S.

C. D. Campbell, F. G. Smith, Maurice Goldfar, R. A. F. Murdoch, W. McL. Mason, Joseph Selvam, R. S. Ninian, A. C. Stevenson, R. M. A. Ormston, Mutiullah Quazi, J. P. Perera, L. B. E. Seneviratne, Max Rosenberg, D. N. Schwartz, J. P. Carlile, E. M. Toloff, H. S. Cheetham, Oliver Springer, Kamal Khalil, E. T. Buell, Rambharat Singh, P. B. Menon, E. C. D. S. Ratnaike, J. L. Roche, and E. F. Dupre.

Developments at the Middlesex Hospital

On July 19th Prince Arthur of Connaught met the workmen, now numbering about 130, who are at present engaged on the reconstruction of this hospital, and thanked them for the care with which they have carried out their work. He explained that in 1932 when the west wing, the residents' block, the annexe (which will be the out-patient department of the future), the boiler house, the Courtauld Institute, and the new nurses' home were finished, the board decided to go on with the work and not only build the now completed Woolavington wing for which they had the funds, but also to start and build the east wing and crosspiece which they knew they had not enough money to finish. Now they had come to an end of their resources and unless further help was forthcoming they would have to stop. The hospital is hopeful, however, that the public will give this support, and this optimistic attitude has been encouraged by a recent gift of £25,000 from Mr. W. H. Collins, chairman of the Cerebos Salt Company, for the purpose of opening up the ground floor of the new east wing and for its establishment and equipment as an X ray diagnosis department. On the advice of the medical committee the hospital is taking this opportunity to separate the two departments of radiology—therapy and diagnosis—and it is proposed to invite an X ray diagnostician to take charge of the new department, while Dr. Douglas Webster will remain in charge of what will become the radiotherapy department. The final plans for the new department will await the approval and coöperation of the new physician in charge, but it is proposed that there be two gastro-intestinal rooms, a room for heavy X ray work, another for fracture cases, and others for examination of the chest, the heart, and the nasal accessory sinuses, for urological investigation, and for operative and dental work. There is also accommodation for a library, a medical officers' room, a waiting-room, a sisters' room, and an office.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 15TH, 1933

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 15 (last week 15); scarlet fever, 2065; diphtheria, 800; enteric fever, 54; acute pneumonia (primary or influenzal), 614; puerperal fever, 35; puerperal pyrexia, 101; cerebro-spinal fever, 21; acute polio-myelitis, 6; acute polio-encephalitis, 1; encephalitis lethargica, 12; dysentery, 8; and ophthalmia neonatorum, 78. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 18th–19th was as follows: Small-pox, 33 under treatment, 0 under observation (last week 36 and 7 respectively); scarlet fever, 2057; diphtheria, 1618; enteric fever, 16; measles, 528; whooping-cough, 388; puerperal fever, 28 (plus 12 babies); encephalitis lethargica, 254; poliomyelitis, 1: "other diseases," 219. At St. Margaret's Hospital there were 18 babies (plus 6 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there were no deaths from small-pox, 4 (3) from enteric fever, 15 (3) from measles, 7 (0) from scarlet fever, 16 (8) from whooping-cough, 19 (4) from diphtheria, 34 (10) from diarrhœa and enteritis under 2 years,

MEDICAL NEV

University of London

At a meeting of the Senate on July 19th Dr. Robert Alex. Webb was elected to the university chair of pathology tenable at the London School of Medicine for Women as from Oct. 1st, 1933.

Dr. Webb graduated as M.D. at Johns Hopkins University, Baltimore, in 1917, and took the English conjoint diploma in 1921. After experience as demonstrator in the University of Manchester he went to Cambridge, where he has been university lecturer in pathology since 1929. He holds the degree of Ph.D. Camb. His contributions to the pathological journals are chiefly in the field of immunology and anaphylaxis.

Dr. W. E. Herbert, since 1931 director of the department of conservative dental surgery at Guy's Hospital medical school, was appointed to a university readership in conservative dental surgery tenable at the school.

At recent examinations the following candidates were successful :—

M.S.

Branch I. (Surgery).—J. T. Fathi (University medal), London Hosp. ; B. M. Fonseka, Middlesex Hosp. ; and A. G. Harsant and S. J. Scurlock, London Hosp.

University of Wales

At recent examinations the following candidates were successful :—

M.D.

Rolf Ström-Olsen and J. M. Thomas.

M.CH.

T. G. I. James.

M.B., B.CH.

Dillwyn Evans, J. R. E. James, D. J. Jones, G. P. Jon
R. J. Phillips, Gwyneth P. Roberts, J. D. Spillane, H. A. Thom
and Alice M. Williams.

Royal College of Physicians of Edinburgh

A quarterly meeting of the College was held on July 1
with Dr. Robert Thin, the president, in the chair.
Douglas Begbie McCrie Lothian (Larbert), Dr. A
David Gorman (Blackburn), and Dr. William Ri
Russell (Edinburgh), were introduced and took their
as Fellows.

Dr. John Fearby Campbell Haslam (Barbadoes
Eric Farquharson Dott (Edinburgh), Dr. William
Burgess (Dundee), Dr. Sydney Alfred Smith (Edin
and Dr. Ranald Malcolm Murray-Lyon (Edin
were elected to the Fellowship.

University of Edinburgh

On July 19th the following degrees and diplon
conferred :—

M.D.—*J. M. Anderson, J. le F. C. Burrow, ‡C.
*I. A. G. L. Dick, †A. R. Gilchrist, George Gord
May Gower, *D. P. Lambert, D. K. L. Lindsay, *J. P.
*R. L. H. Minchin, Ruth M. Monro, William Morc
Rigg, C. K. Robertson, R. A. T. Rouse, Henry Shaffe
M. Taylor, J. S. W. Westwater, and Jai Yunibandhu.

† Awarded Gold Medal for Thesis.
‡ Highly commended for Thesis.
* Commended for Thesis.

M.B., Ch.B.—* Mary E. Alexander, E. S. Am
Armah, G. L. Ashford, A. H. Banks, C. C. Barclay,
* D. M. F. Batty, M. S. Behardien, * Alexander B
Brown, M. A. Byer, William Calder, Kenneth Ca
Campbell, Hilda I. Carter, D. R. Cattanach, W. G. F.
B. S. Chowdhury, M. J. Cochran, H. D. Conway, J.
J. H. Croom, P. H. Dalgleish, G. J. G. Davidson,
T. E. Elliot, R. A. Elliott, G. D. Falconer, J. R.
Gardiner, M. M. Ghosh, E. H. Gillespie, J. W
C. L. Grant, F. S. Gregory, H. W. Hall, C. D. F
Harry, F. D. Hart, J. L. Henderson, R. J. Hen
Henderson, F. J. C. Herrald, I. H. Hewetson, D
Howard Hogan, D. R. Huggins, Margaret
D. M. Keir, A. D. Latham, Edith Laurie, J. W
Levingson, W. A. Liston, J. C. Lowe, Freda M.
Ludlam, G. R. Lunn, R. D. Lyon, D. D. M
Macfarlane, Alexander M'Gregor, W. M. M
MacKenzie, Neil Macmichael, Christina M
Duncan Malloch, Joyce E. Marshall, S. H.
Maxwell, Lilian W. May, E. W. Melvin, Mary
Miller, Evelyn E. Mitchell, Robert Mitchell
W. A. Morton, D. L. Murray, Honora C. Osb
bridge, Marjory M. Pearson, R. S. Peill, J.
Philp, W. A. Ramsay, J. F. Rattray, R. W
Reid, Isabella M'K. Robertson, Lucinda R
Rossouw, G. A. Roulston, C. F. Roza, J. J. F.
Russell. N. F. Sawers, Jack Saxton, J. G. S
D. F. S. Shaw, J. A. W. Shearer, Alan S
Sherriff, J. B. Shield, M. C. Stander, R. H.
Stewart, A. D. Stoker, A. L. Stuart, Agnes B
Sutor, Hon-fan Tai, H. P. Tait, Mary Ta
A. W. S. Thompson, Alexander Thomson, E

Scott Tho
G. D. Wi
M. S. Za

D.P.H
H. P. S.
I. O. K
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NOTES, COMMENTS, AND ABSTRACTS

PHARMACY IN RETROSPECT AND PROSPECT*

BY C. H. HAMPSHIRE, M.B. LOND., F.I.C., PH.C.

Dr. Hampshire said that it was an established custom to hold the British Pharmaceutical Conference in London every ten years, when it became the chairman's duty to review general pharmaceutical progress during the previous decade. The most striking change, he said, over the last ten years had been the reduction in the number of vegetable products used as drugs, the laboratory rather than the vegetable kingdom being drawn upon. Of the crude drugs contained in the British Pharmacopœia, 1914, 60 had been now excluded, with the intention to reduce the number of drugs in employment having similar active principles or therapeutic purposes, but, he added, this tendency in therapeutics made it necessary to consider carefully the type of work for which the pharmacist of the future must be trained, for he must now be less of a botanist and more of a biologist, a knowledge of bacteriology and of the physiology of animal processes being demanded. The steps taken by the Pharmaceutical Society to adjust the education of the pharmacist to the changed basis of materia medica, and the facilities now afforded for the study of microbiology and of biological chemistry, would, he held, bear valuable fruit later, while the indications of changes in the educational requirements of pharmacists were showing great foresight.

Therapeutic Substances Act

Of this Act the chairman said: "The Act was passed in 1925 to provide for the regulation of the manufacture, sale, and importation of therapeutic substances, the purity or potency of which cannot be adequately tested by chemical means. The substances to which the Act applies include: vaccines, serums, toxins, antitoxins, and antigens; insulin, pituitary (posterior lobe) extract; certain organic arsenical compounds; and sterilised ligature and suture material. In accordance with this Act an authority was set up under the Ministry of Health to make regulations prescribing the standards and methods of biological testing to be applied to these substances. The duties of preparing and keeping standard materials and of carrying out control tests are entrusted to the National Institute of Medical Research. This Institute not only maintains the standards for this country, but has charge also of the International Standards prepared in accordance with agreements reached by the Health Organisation of the League of Nations. It is scarcely necessary to point out the advantage of having a common unit and a common standard for all countries, in relation to important remedies such as insulin. The Institute has also undertaken, at the request of the General Medical Council, the charge of the standard materials required for the biological testing of digitalis and strophanthus and their preparations which are not included in the Therapeutic Substances Regulations, but are described in the British Pharmacopœia, 1932. The International Standards for vitamin testing are also kept at the Institute. The Therapeutic Substances Act applies to Great Britain and Northern Ireland; similar descriptions of most of the substances described in the Regulations are given in the British Pharmacopœia, in order to provide standards in other parts of the British Empire in which the Pharmacopœia is the legal authority. The Permanent Commission on Biological Standardisation appointed by the Health Organisation of the League of Nations is another body which exercises indirectly an influence on pharmacy. The decisions of this Commission as to the general principles of standardisation, the drugs to be standardised, the units to be adopted, and the standard material to be employed affect profoundly the materials which the pharmacist has to handle. Other activities of the Health Organisation which may be mentioned as bearing on pharmacy are the Malaria Commission, which has defined standards for the preparation of the alkaloids of cinchona known as totaquina, and the Commission of Experts which is at present engaged in investigating the various processes for the assay of morphine in opium and its preparations, and of cocaine in coca leaves and crude cocaine, with a view to defining international standard methods."

Therapeutic Trials Committee

In allusion to this committee, which was formed by the Medical Research Council in 1931, the chairman defined its object as being to supply manufacturers with clinical reports on new therapeutic agents which they are preparing to place on the market. He said: "Anyone accustomed to read continental medical and technical literature must notice the frequency with which pharmacological and clinical reports regarding the new products put out by private firms appear. In this country it is much more difficult, for reasons which are well understood, to secure for publication clinical reports on privately owned remedies, and the British manufacturer is consequently at a disadvantage. The committee removes that disadvantage, and by reason of its impartial standing strengthens the claims of any remedy of which it approves. The committee acts at the request of the manufacturer, who is required to submit with his product all available information regarding it. If the substance appears likely to be a useful remedy supplies are distributed to a number of clinicians in different parts of the country, and in accordance with the reports received, the manufacturer is advised whether the product is of value or not. If the remedy is approved the committee supply clinical reports which the manufacturer may use for the purpose of introducing his product. On the other hand the committee may refuse to deal with any product if the description and statements supplied by the manufacturers make it seem that the product is not likely to be worth investigating. In the event of a product being tried and reported upon unfavourably the manufacturer is advised not to proceed, and the committee reserve the right to publish the reports. Dr. Chassar Moir's investigation upon ergotoxine ethanesulphonate and Dr. E. J. Wayne's clinical trials of digitalis glucosides are the only subjects, so far as I am aware, to be reported upon for publication up to the present. This does not represent, however, all the ground covered. It is in the nature of things that the best work done by such a committee, that is, the investigations in relation to the drugs which eventually are reported upon unfavourably, will not be made public. I describe this as the best work, since a careful and comprehensive opinion on a product will benefit the public and the medical profession by keeping off the market valueless drugs which might otherwise be brought into use on insufficient evidence, and will save the manufacturer the expense and effort of launching an article which is destined ultimately to be unsuccessful. A good product, on the other hand, would be expected, in any case, eventually to gain acceptance, though the favourable report of an impartial committee of a public body will be a great advantage to the British manufacturer in marketing his remedy."

The British Pharmacopœia, 1932

Dr. Hampshire described the formation of the Pharmacopœia Commission, the result of the acceptance by the General Medical Council of the recommendations of the Committee of Civil Research. The new Pharmacopœia was produced in September, 1932, and he alluded briefly to the general satisfaction with which it had been received, and commented upon the fact that during the past decade pharmacopœias of Italy, Holland, Belgium, Spain, Denmark, and Rumania had been revised, while new pharmacopœias are also in preparation in Switzerland and Austria, and revision is proceeding in the United States.

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* Abstract of the chairman's address at the British Pharmaceutical Conference, London, July 24th–28th.

The Ergot Problem

Dr. Hampshire dealt at some length with the ergot problem. He said that ten years ago it was accepted that the work of Barger, Carr, and Dale had established ergotoxine as the alkaloid which gave to ergot its characteristic activity. The observations of Chassar Moir on the effect of ergot in human patients, however, made by a new method of graphical recording of the uterine contractions, revealed unexpected results. Moir stated that the effect of ergot taken by the mouth was to induce with remarkable rapidity strong uterine contractions, which, however, lasted only for a limited time. This was in contrast to the known effect of ergotoxine, the effect of which is much slower in beginning and lasts for a much longer time. Moir concluded that there must be in ergot some principle not previously identified. Tests of ergot preparations of the British Pharmacopœia, 1914, by this method showed them to possess the activity ascribed to this unknown constituent. Fortunately the liquid extract of the British Pharmacopœia, 1932, was also found to possess this effect in about the same degree. "The next step," said Dr. Hampshire, "should be the separation and identification of the principle to which the action demonstrated by Moir is due. A decision is then required from the clinician as to the type of action for which ergot is to be used. Is the action to be quick in inception and comparatively short in duration, or is the effect desired that of ergotoxine, which is slower in beginning and longer in duration? With these questions answered and the basis of standardisation settled it should then be possible to place the chemical assay of ergot on a sound basis. Meanwhile the preparations of the Pharmacopœia provide the means of administering ergot in forms which have been standardised with respect to ergotoxine, a substance which has a definite action, and the position is thus considerably advanced as compared with that of ten years ago."

The Standardisation of Digitalis

Dr. Hampshire described the researches which had made it possible to have in the present Pharmacopœia standard forms of digitalis ordinarily used by the physician for administration by the mouth, but added that the question of providing a preparation for injection is much more difficult, as many of the substances sold as the active principles of digitalis are mixtures of indefinite composition. In these circumstances when the administration of a drug of the digitalis group is required the physician ordinarily has recourse to strophanthin.

Vitamin D

Dr. Hampshire disclaimed any attempt to set out the present position of vitamins in their biological, chemical, and therapeutic aspects fully, while he added that the question of standardisation had been fully dealt with by the Health Organisation of the League of Nations. He defined the vitamins, however, in terms of what may be expected from them in the treatment of deficiency disease, and of vitamin D said as follows: "Vitamin D, the fat-soluble antirachitic vitamin, attracted attention early in the development of the subject of accessory factors by reason of its occurrence in cod-liver oil, the typical antirachitic remedy. The principal advances in relation to vitamin D arose from the discovery that this material could be produced synthetically. The occurrence of this substance in a large variety of materials has been the subject of wide investigations, and the biological methods of determination have been brought to a high degree of development as the result of very extensive researches. The principal appeal to us, however, will be made by the discoveries on the chemical side. Two fundamental facts in relation to the chemistry of vitamin D were the discovery that sunlight or ultra-violet light brings about a cure of rickets and that antirachitic properties could be produced in fatty foods of various kinds by exposure to ultra-violet rays. The nature of the change taking place in food materials when thus irradiated was naturally a subject of great interest. The simplest explanation assumed the presence in these materials of a substance which was changed by the chemical action of the rays into vitamin D. This substance was eventually identified as ergosterol, a sterol having the formula $C_{28}H_{44}O$, which is a constituent of yeast, of ergot, and of many fatty foods. Ergosterol is a constituent of the skin, and many of the benefits of exposure of the skin to sunlight are consequent upon the conversion of ergosterol into vitamin D and the absorption of the vitamin into the system. The constitution of ergosterol is not yet fully worked out, but some progress has been made and a number of derivatives and isomers have been isolated. The principal interest centres round the methods of irradiation, which have now been developed to the extent that it was found possible to include in the British Pharmacopœia, 1932, under the name liquor ergosterolis irradiati, a solution in oil of an antirachitic principle, probably identical with the vitamin D in cod-liver oil. The solution is standardised by a biological method to contain in 1 g. 3000 units of antirachitic activity. The Pharmacopœia accepts the International unit and suggests procedures for carrying out a curative or a prophylactic method of assay, either of which may be used. In the earlier drafts of the Pharmacopœia, the preparation by irradiation of a solution of purified ergosterol in oil was described, but shortly before the Pharmacopœia was completed the isolation of pure vitamin D was announced, and it was possible to make the monograph in the completed Pharmacopœia include the alternative method of preparing the solution by dissolving the purified antirachitic principle in the vehicle. The actual vitamin D, which has been named calciferol, was isolated as the result of a series of researches by a team of workers at the National Institute for Medical Research. It may be obtained in the form of its 3 : 5-dinitrobenzoate either from the crystalline material which irradiated ergosterol yields on fractional sublimation at low pressures, or directly from the irradiation product of ergosterol. The active substance was also isolated almost at the same time by Windaus in Germany. Calciferol is now a commercial article prepared by the process worked out at the National Institute for Medical Research. In this process ergosterol is irradiated in an organic solvent, the solvent and unchanged ergosterol are removed, and the so-called active resin which remains is esterified with dinitrobenzoyl chloride. The dinitrobenzoate on hydrolysis yields calciferol, which is considered to be an isomer, and probably a stereoisomer, of ergosterol but without water of crystallisation. When pure it is perfectly white, but quickly turns yellow and ultimately brown in contact with air, more especially if powdered or heated. The melting-point, optical rotation data, colour reactions, and other chemical and physical properties have been fully worked out. The biological activity is not less than 40,000,000 units per gramme. The International standard recommended for the assay of vitamin D is the standard solution of irradiated ergosterol issued from the National Institute for Medical Research, and the unit is the activity of 1 mg. of this solution."

Animal Substances: the Sex Hormones

In the section of the address devoted to the pharmaceutical employment of animal substances in the treatment of disease, after reference to the value of insulin. liver and pituitary extracts, thyroxine and adrenaline, he alluded to the recent researches on sex hormones. "Researches," he said, "have been made in recent years on the occurrence of hormones which produce œstrus, and as a result considerable knowledge of the chemistry of the active hormones has been gathered. Two main substances are described, keto-hydroxy-œstrin, a white crystalline solid, melting at 254° C., and having the empirical formula $C_{18}H_{22}O_2$, and the closely allied trihydroxy-œstrin. These substances, which may be obtained from the urine of pregnant animals, have been tried in the indefinite and difficult group of maladies with which the gynæcologist has to deal, and their position as remedies must perhaps be left undecided for the present. It is significant, however, that the Permanent Commission on Biological Standardisation has thought it worth while to set up an international standard and to define an international unit. The standard is a quantity of keto-hydroxy-œstrin kept at the National Institute for Medical Research, and the unit of activity is defined as the specific œstrus-producing activity contained in 0·0001 mg. of this standard preparation. It is interesting also to note the relation of these hormones, which have seemed hitherto to be typically animal products, to the vegetable kingdom. Œstrus-producing preparations have been made from germinating grain, and also from peat, coal, petroleum and bituminous material. The hormone has been shown also to influence the growth of certain plants, including hyacinths and lilies of the valley, which come to flower more quickly when small quantities of sex hormone are supplied to them. Of great interest also is the recent discovery that auxin, a plant growth-promoting hormone isolated from the heads of the shoots of maize or barley, occurs in the urine of warm-blooded animals. The male sex hormone has also been isolated and has been assigned the formula $C_{16}H_{26}O_2$. It is an oxyketone and a secondary alcohol."

The Need for Research

After reviewing the action of the new drugs appearing during the decade and of the pharmaceutical research work on galenicals, he concluded as follows: "An effect created in the mind of one who has been concerned in the preparation of the new Pharmacopœia is a feeling of surprise at the very considerable gaps which exist in pharmaceutical knowledge and at the number of subjects upon which precise information is lacking. There is need for much investigation even of some of those well-established drugs which are considered worthy of inclusion in the Pharmacopœia. One may hazard the guess that with the publication of the new British Pharmaceutical Codex a similar group of unsolved problems will become evident. This, to my mind, is the chief justification for the existence of this Conference, which has always been the principal medium for the publication of pharmaceutical research in this country. It is hoped that the Conference Research List which is published annually will stimulate the interest of pharmaceutical workers and will be the means of initiating research on those subjects which are specially connected with pharmacy. The future of this Conference and its continuation as a useful body in the national life will rest principally upon its reputation as a means for the publication of scientific research in pharmacy, and for the discussion of technical problems. It is more necessary now than ever before that pharmacists should keep abreast of the scientific side of their work if pharmacy is to keep its place. In proportion as they do this so will the standing of their calling and its recognition by others be increased. The success of pharmacy in the future will depend upon the fitness of the individual to carry out in a worthy manner the duties entrusted to him by the community."

THE BRIDGE OF ALLAN CONFERENCE.—Sir Henry Lunn writes to correct a misapprehension which has arisen in connexion with the medical conference held at Bridge of Allan on May 20th (see THE LANCET, May 27th, p. 1154). The subject of discussion was Rational Dietetics, not Modified Fasting and Dietetics. This latter title was used in error in certain press notices referring to the conference.

BRISKIES

THIS is a flaked cereal breakfast food supplied by the Thames Milling Co., Ltd., Erith, Kent. The material is made from the whole wheat which is cooked during manufacture in milk in place of steam. The manufacturers state that the milk employed is previously soured by inoculation with *Bacillus bulgaricus* in order to get as high a percentage as possible of lactic acid in the milk for the purpose of splitting up the starch in the wheat. They believe that such a process makes the flakes more nourishing and digestible. On analysis the following results were obtained :—

	Per cent.
Moisture	4·0
Total mineral matter	1·96
Fat	1·60
Protein (N × 6·25)	12·5
Matter soluble in cold water	15·7
Water soluble reducing sugar (as dextrose)	1·66
Crude fibre	1·8
Soluble acid (as lactic)	0·34
Assimilable carbohydrates (starch and hydrolysed starch)	78·14
Calories per lb.	1753

A microscopic examination showed that the wheat starch had been very considerably transformed by the cooking process to which it had been subjected, and this is further borne out by the relatively large amount of the material which is soluble in cold water. This treatment would increase digestibility, while the food possesses the great asset of a pleasant flavour. The presence of milk in the finished product enhances the food value, and no added preservatives, flavouring or colouring materials were detected.

THE DESOUTTER ARTIFICIAL LEG

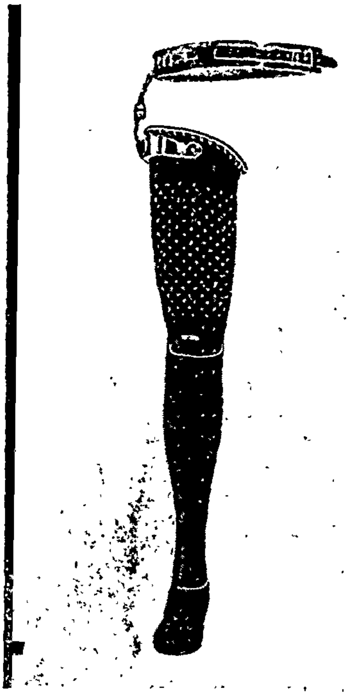
A NEW artificial leg for above-knee amputations has been demonstrated to us by a wearer of the appliance. The limb is the invention of Mr. Charles Desoutter, of the firm of Desoutter Bros., and appears to mark a real advance in prosthetics. A new system of construction has been used, the limb being made from seamless pressings, solid-drawn from a flat sheet of "alclad," a trade name for duralumin coated with pure aluminium. The shin from the knee to the ankle is of one piece, and the thigh from the knee to the crutch also consists of one seamless pressing, and the result is an apparatus which combines strength with remarkable lightness (Fig. 1). The limb only weighs 3½ to 4 lb.

To the orthopædist the point of greatest interest is the knee-mechanism, which so controls the swinging speed and action of the joint as to make the walking natural. The loose and pendulous swing, which is a notable feature of a heavy artificial limb, was absent from the gait of the one-legged man who paraded before us; he was an above-knee amputee with a stump approximately 9½ inches long. The half bending jerky knee action typical of the knee control of many of the artificial limbs that found their way on the market after the war was entirely absent.

A notched control wheel is sunk flush in the knee and is easily rotated with slight thumb pressure through the clothing. The shape and natural appearance of the appliance are due to the absence of outside straps and elastics, the pelvic band affording sufficient support. The wearer during the demonstration first walked with the knee control out of action, when the artificial nature of his limb was obvious; but on turning the control wheel his gait became natural, while he said that he could now walk much faster (see Fig. 2). The mechanism by which this is effected is clear from the detailed illustration. The easy action has been arrived at by mounting the wheel on a minute ball-bearing thrust race. The spring is a sort of artificial quadriceps, and the action gradually weakens as the leg flexes, becoming neutral in the sitting position (see Fig. 3).

A film in slow motion prepared by the firm shows

FIGS. 1



2

3

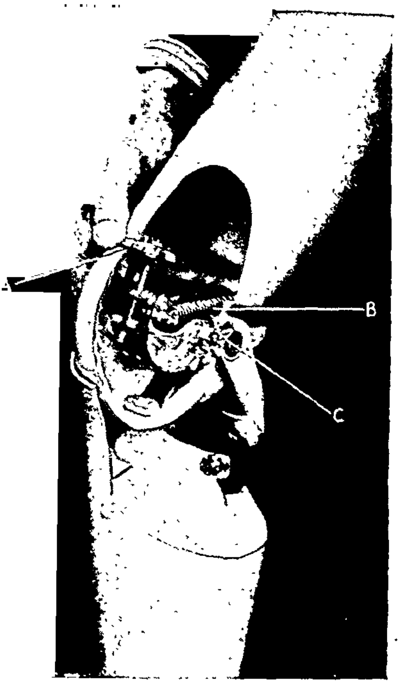


FIG. 1.—The smooth outline is the result of construction by seamless pressings.

FIG. 2.—The wearer rotating the notched control wheel. This easy action has been arrived at by mounting the wheel on a minute ball-bearing thrust race.

FIG. 3.—Half-section of knee, exposing construction. (A) control wheel; (B) high duty compound ball-bearing knee-joint made from Kayser Ellison oil-hardening steel; (C) return spring.

well the leg action of a normal person walking, and discloses that in taking a step forward with natural gait the leg starts its bend and swing comparatively slowly, not rising high from the ground. But in coming forward acceleration occurs until the step is complete. In this film two men are shown walking side by side, one of whom has two legs, while the other has lost a leg above the knee. It needs an expert eye to discern any difference.

THE REDUCTION OF NOISE IN BUILDINGS

IT is unfortunate that in measure with the increase of mechanical noise in daily life building generally has become less substantial, and on account of its monolithic structure, very much more susceptible to the easy transmission of all sorts of noises. The architects of reinforced concrete and steel-framed buildings are, in fact, hard put to devise means of preventing the entry of street noises on the one hand, or the passage of internal noises over the fabric of their buildings on the other; and since constant noise has an irritating effect upon our nervous systems, quietness in homes, offices, and hospitals acquires a special value. Actually architects have been working a good deal in ignorance, lacking means of measuring noise scientifically or of combating it with scientifically tested materials. It is here that the Department of Scientific and Industrial Research and its building research station at Watford, ready to turn a trained staff on to the laborious work of testing all sorts of usable materials for their acoustic properties, can offer sound practical advice. In a recent bulletin [1] the department covers the field of design with great thoroughness, completing a general exposition of the designer's approach to the subject with a table of materials and constructions listed according to their sound reduction values. In case false hopes should be raised at the outset they hasten to state that "very few of the special partitions when isolated and tested under laboratory conditions . . . show themselves to be equal in efficiency to a 9-inch brick wall."

NEW PREPARATIONS

DETTOL.—Reckitt and Sons, Ltd., are introducing a new germicide known as Dettol. Scientific data submitted establish that *dettol* is an efficient germicide—it has a Rideal-Walker coefficient of 3·0—and that in addition it is non-toxic and non-irritant. It has a pleasant smell and is non-staining. Dettol is a halogen derivative of xylenol dissolved in a mixture of aromatic essential oils. On account of its non-corrosive and non-toxic qualities, the claim is made that it can be used undiluted for the sterilisation of the hands and skin (especially as regards *hæmolytic streptococci*). These qualities should make it of particular value in midwifery. A cream, containing 30 per cent. of *dettol*, has been prepared for certain obstetrical purposes. Dettol forms an emulsion with water, but to meet the needs of surgeons who prefer a clear solution for the sterilisation of instruments another preparation known as Dettol Soluble is available. This has a Rideal-Walker coefficient of 2·5, and laboratory tests suggest that it is not less potent as a germicide than the emulsion. Dettol is obtainable from the main London medical suppliers and chemists, and a free sample for trial will be sent on direct request to Reckitt and Sons, Ltd., Hull.

MEDICAL APPOINTMENTS IN IRAQ.—In our advertisement columns this week it is announced that six appointments will shortly be made at the Royal College of Medicine in Bagdad. Application is invited for the chairs of epidemiology and public health, anatomy, biology, materia medica, mental diseases (including neurology), and gynæcology. Lectures are given in English, and the new professors will take up their duties in October.

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[1] Bulletin No. 14 of the Building Research Board. H.M. Stationery Office. 9*d*.

ADDRESSES AND ORIGINAL ARTICLES

BILIOUS MIGRAINE

ITS TREATMENT WITH BILE SALT PREPARATIONS

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The belief that migraine was caused by a "superfluity of bilious humour," by a "hot distemper of the liver," or by "black bile" goes back to very ancient days. Most older writers regarded the sick headache either as a "complication of dyspepsia" or as an expression of a primary biliary disorder. Fothergill, in 1784, gave the weight of his authority to the view that migraine arose from inattention to diet, particularly in the form of melted butter, fat meats, pepper, or strong liquors. Thomas Watson, in 1857, also supported the view that the cause of bilious headache was digestive. Liveing, on the other hand, in his admirable account of megrim, written in 1873, after discussing the history of the "doctrine of biliousness," gave no support whatever to a biliary origin of sick headache. Of recent years attention has been directed again, notably by French and American authors, to the rôle of the liver and gall-bladder in migraine.

Stasis in the *gall-bladder* has been put forward as the origin of certain migraines by Chiray and Triboulet, Lomon, and Vallery-Radot and Blamoutier. Friedlander and Haug and Wohrmann emphasise stasis in the biliary passages, mainly due to dyskinesia of the gall-bladder, as a cause of migraine. Gaston Lyon also regards cholecystatony as one cause of migraine—to mention only a few of the supporters of this conception.

Evidence pointing to some *hepatic* dysfunction as the underlying cause of migraine has been brought forward by McClure and Huntsinger, who claimed to have demonstrated some liver functional disturbance in 90 per cent. of 72 patients examined. Diamond also recorded 32 of 35 migraine patients as having abnormal amounts of bilirubin in the blood, which he regarded as a latent icterus due to liver function disorder; the changes he reports are however very small.

Nearly all authorities agree that migraine may be of varying types, and that probably different exciting causes may be at work in these different types. The bilious type is one which is especially characterised by profuse and intense vomiting, and in which other symptoms, such as headache and ocular manifestations, are less marked or even absent. In some, abdominal pain or discomfort may also be present. Critchley and Ferguson agree that many of these "important and common cases are intimately associated with hepatic dysfunction."

The Present Inquiry

The series of cases on which this paper is based have been studied: firstly, with the object of determining to what extent a bilious type may be distinguished from other types of migraine; secondly, how far, in such bilious cases, any disorder of liver or gall-bladder can be demonstrated, and whether such disorder, when found, is to be regarded as a primary cause of the attacks or as a secondary result of them; and, finally, to what extent treatment directed towards the correction of such disorder may be expected to influence the frequency or severity of the migraine attacks.

For the purposes of this investigation I have regarded migraine as a symptom-complex, showing certain well-defined characteristics. Many cases in which reasonable doubt of the clinical diagnosis existed—irrespective of the possible cause—have been excluded. The main features on which I have relied have been the following: a familial tendency, auræ, periodicity, freedom between attacks, headache and vomiting, though all these characteristics have not necessarily been present in every case. For various reasons 34 of the original series of 100 cases have been excluded. The remaining 60 (6 being separately discussed) which are analysed in this paper have all been patients in whom the condition could with justification be diagnosed as migraine. The distinction of "symptomatic" migraine from "idiopathic" migraine was only possible in a few cases, but the former have been excluded except in 2 cases, mentioned later in detail.

ANALYSIS OF THE CASES

Of the 60 patients, 43 were female and 17 male. In 30, or exactly 50 per cent., the onset of attacks was before the age of 14; in 17, between 14 and 21; and in 13 only over 21 years of age. Ocular phenomena in the form of flashes, fortification spectra, silver specks, dimness of vision, or temporary blindness were noted in 22, or 36·6 per cent. Premonitory nervous symptoms such as paræsthesias, weakness, aphasia, or vertigo were observed in 10. An aura of extreme drowsiness was recorded in 7, of whom 4 had marked and persistent yawning for hours before the attack. In 5 of these patients intense anorexia was also present, but in 3 others insatiable hunger was the warning symptom, and in 2 of these a craving for sugar or sweet things always occurred. A definite familial incidence in parents or close relatives was elicited in 36—i.e., 60 per cent. Chronic constipation was noted in 12 only, of whom 9 noticed that this was worse just before an attack.

Diet.—A dislike of and inability to take fatty food was noted in 11, but tea, eggs, and milky food were blamed for provoking attacks by 5 other patients. In 44 no obvious dietetic factor had been found by the patient or could be elicited on questioning. In 13 cases there was a history of jaundice, and 40 were of the nervous, anxious, excitable type, but 20 could fairly be described as calm and phlegmatic.

Predisposing and exciting factors.—Twenty-one patients stated that their attacks were particularly brought on by anxiety or excitement; 5 of them dated the beginning of their migraine from a severe mental shock, such as a bereavement. In 32 the blood pressures between attacks were below the normal average, but in 6 there was some associated hypertension with the migraine.

Headache was present in all but 5 cases—i.e., 55. It was bilateral from the beginning in 30, the site being mainly frontal in the majority but occipital in 6. It was unilateral at the start in 25 patients, beginning on the right side in 15, on the left in 7, and in 3 on either side indifferently.

Vomiting.—In 23 cases vomiting was severe, and in 17 moderately so. Six patients had only occasional vomiting, 10 suffered from nausea and retching without vomiting, and in 4 cases only was there neither nausea nor vomiting. Thus in 40 patients, or 66 per cent., vomiting could be regarded as a prominent feature, and in only 4, or 6·6 per cent., were there no "bilious" symptoms at all. Of the 40 patients who had vomiting, relief followed this fairly rapidly in 30, whilst in 10 no appreciable relief seemed to be produced.

These figures compare very closely with Liveing's original series of his own and collected cases, in which 3 of 54 patients had no vomiting (5·5 per cent.), 8 had nausea only, and 43 had vomiting (79 per cent.). In his cases he also noted that the headache was bilateral in 65 per cent., and that 60 per cent. had an onset in childhood. The high percentage of those patients having marked vomiting in the attacks makes this so important a characteristic of migraine that if a special bilious type, with any different causation from other types, is to be fairly delineated, it would appear to constitute the majority of all cases.

There is no definite relationship in this series between the severity of vomiting and the presence of visual symptoms or the intensity of the headache. All those 7 patients, however, who had an initial sensation of drowsiness also suffered from severe vomiting, as did those who noticed a marked premonitory change in appetite.

BILIARY DRAINAGE

Thirty patients were selected in whom the vomiting was particularly severe. All showed the typical clinical characteristics of migraine. These patients were examined between attacks by the method, originated by Meltzer and Lyon, of duodenal catheterisation and biliary drainage. In many cases the investigation was carried out on two, and in a few cases on three, occasions. In 3 patients the position of the tube in the duodenum was doubtful and these had to be omitted, so that 27 successful cases remain to be considered.

Passage of the tube through the pylorus at the beginning of an attack in several patients was unsuccessful, as there appeared to be a considerable pyloric spasm, together with gastric hypersecretion. The small Ryle's tube was used, and the position of its end in the first or second part of the duodenum was verified by radiography in many of the cases. In others the correct position was assumed by the recovery of a few cubic centimetres of clear duodenal bile, the absence of gastric mucus or acid, and the fact that a few syringefuls of warm water injected down the tube could not be recovered, as they almost always can be when the end of the tube lies in the stomach. With sufficient experience it is almost always possible by such means to be sure that the end of the tube has passed through the pylorus. In all cases the form of biliary stimulus used was 50 c.cm. of warm 33 per cent. magnesium sulphate solution, which represents about four drachms of the salt. Particular care was taken to avoid psychological factors in the carrying-out of the test; in all cases the magnesium sulphate was injected slowly at body temperature through the tube and the patient was not aware that any other fluid than water was being used.

Of these 27 patients subjected to biliary drainage, in 6 no concentrated B bile* could be obtained at all, and in 6 vomiting occurred at the onset, during or just after the flow. In 4 of these 6 patients the vomiting was preceded by the typical train of symptoms, which the patients described as "exactly like their usual attacks." In 1 case characteristic hyperæsthesia of the right side of the scalp and
fortifi n figures occurred; in the remai
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volume of 25 to 50 c.cm. of B bile was withdrawn, of normal concentration in 3, and of poor concentration in 4.

The time of onset of the flow of bile after the injection of the stimulus varied between one and twenty-five minutes, the average length of time being exactly six minutes. The duration of the biliary flow was also variable, the average of those in whom vomiting did not occur being thirty minutes. These averages compare very closely with those which I have found for the normal subject. The bile was examined microscopically, chemically, and in some cases bacteriologically. The microscopical and bacteriological examinations will not be discussed, as they are of less interest in this connexion.

Chemically the bile was tested for urobilinogen at once by the addition of Ehrlich's aldehyde reagent, and an empirical standard was taken representing the time at which the red colour developed and its intensity. Albumin was estimated by the very rough method of Esbach's albuminometer, the bile being first acidified with acetic acid. Examination of the bile by these methods showed, in the seven cases giving the highly concentrated, almost black bile, a great excess of urobilinogen and a definite increase in albumin. Two others showed some excess of albumin and three a moderate increase in the amount of urobilinogen. In four, traces only of urobilinogen were noted, and in two no colour change was seen at all. In one case, on the addition of Ehrlich's aldehyde reagent, an unusual brilliant canary yellow colour appeared which was not seen in any other case and the significance of which I am not able to explain.

CHOLECYSTOGRAPHY

For various reasons it was not possible to radiograph all these patients, but in 18 cases X ray examination of the gall-bladder was carried out before and after administration of sodium tetraiodophenolphthalein. After control examination the dye was given by mouth in the form of Shadocol, and films were taken 12, 15, and 17 hours later, and again two hours after a large fatty meal of butter and eggs. There is now abundant evidence that with careful technique by the oral method a poor or absent shadow of the gall-bladder is in a very high proportion of cases indicative of some disorder of the liver, bile-ducts, or gall-bladder. Even when absorption of the dye might appear to be deficient, as when the patient vomits, there is normally little failure in visualisation of the gall-bladder unless the vomiting takes place within an hour of the shadocol administration. In none of these cases was there early vomiting or evidence suggesting failure of dye absorption.

Of these 18 patients only 9 showed a good gall-bladder shadow of normal density with normal rate of concentration and emptying after the fatty meal. Four showed an abnormally poor shadow with delayed concentration and emptying; 4 a shadow so faint as to be only just detectable; and 1 no shadow at all. In those 9 patients showing a normal gall-bladder shadow, concentrated B bile was obtained by biliary drainage in all but one, who vomited as the flow was in progress. Two of those showing an
ormally faint shadow gave a dark concentrated
4 very small amounts only of pale bile were
The results, therefore, of the two methods
n agree in the respect that a good dye
und with the recovery of B bile by
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in association with the withdrawal of dark concentrated B bile by duodenal drainage is, in my experience, very suggestive of liver deficiency, and I have noted this in a number of cases of cirrhosis of the liver.

Discussion

The results in the 27 patients examined by biliary drainage and cholecystography showed some variation from findings in the normal subject in 19 cases (or 70 per cent.) by biliary drainage, and by radiological examination in 9 of 18 cases (or 50 per cent.). The nature of these deviations from the normal were variable.

(1) The appearance in 4 patients of a characteristic migraine attack during the biliary flow suggests that some hepatic or gall-bladder action was able in these patients to act as an exciting cause of migraine. A psychological cause could not, of course, be definitely excluded though, as mentioned previously, the technique employed excluded it as far as possible. In one of these cases the magnesium sulphate was injected while the patient was asleep.

In order, however, to test whether the attack was in fact associated with the actual discharge of bile, the test was repeated in these 4 and 2 other patients, except that the same amount of magnesium sulphate was injected through the tube into the stomach. In none of these did symptoms resembling a migraine attack occur, though in one patient vomiting without associated symptoms did take place.

(2) In 7 patients the findings pointed to a condition of stasis in the gall-bladder, with increased concentration of bile.

(3) In 7 the results of biliary drainage and cholecystography were consistent with a defective gall-bladder concentrating power, such as might be produced by chronic cholecystitis. They could not, however, exclude a hepatic cause. If the evidence from both these tests is presumed to implicate the gall-bladder as apart from any hepatic cause, it shows that in 10 cases out of 27 some gall-bladder disorder other than mere stasis was present (Cases 8 to 17).

THE GALL-BLADDER

In order to try to determine whether such gall-bladder disorder might be the cause and not the result of migraine, I have investigated 6 patients (not included above) who suffered from undoubted migraine, and from whom the gall-bladder was removed. Short protocols of these patients (Cases 1 to 6) are given below. In all these patients definite organic disease of the gall-bladder was found. In 5 no change in the frequency or severity of the migraine attacks resulted, and in 1 only (Case 4) has there been relief from attacks after operation, though this patient has only been under observation for four months since the removal of the gall-bladder. (In one patient (Case 7) a condition of duodenal obstruction from adhesions was relieved at the time of cholecystectomy, and there have been no further attacks of migraine since. This patient was the only one in whom a purely local organic lesion could be definitely shown to be causative of attacks which were clinically characteristic of migraine; in these attacks there was no abdominal pain suggesting duodenal obstruction, but there was unilateral headache and profuse biliary vomiting with complete freedom between attacks.)

Kehr, in 1901, noted that subjects of gall-stones often have migraine, which, he stated, disappeared when the calculi were removed by operation. McClure and Huntsinger, however, record six cases, in none of which were migraine attacks relieved by removal of the gall-bladder for definite organic disease. In the patients here described it is noteworthy that symptoms of dyspepsia had become grafted on to pre-existing migraine attacks, which had occurred for many years previously without any indigestion. This fact, together with the unsuccessful results of cholecystectomy in relieving the migraine attacks, points unmistakably to the view that gall-bladder disease is a secondary result of migraine and not a cause of it. The gall-bladder stasis which was found in 7 of the patients examined may also be regarded in the same light.

It seems probable, therefore, that disorder of gall-bladder function and the formation of gall-stones may be brought about by recurrent migraine attacks predisposed to by a common hepatic or constitutional tendency in migraine subjects. It has been estimated that some 25 per cent. of the population suffer from migraine in various degrees, and that approximately 10 per cent. have some affection of the gall-bladder with or without stones. It is thus likely that some 2·5 per cent. of migraine subjects will by coincidence have associated gall-bladder disease independent of the migraine altogether. Of these 27 selected patients of the bilious type, the evidence points to 10, or 40 per cent., having such biliary disease, not including those 7 in whom stasis in the gall-bladder appeared to exist. It is thus justifiable to conclude that the frequency of the two conditions together is higher than can be accounted for by mere coincidence of two common disorders.

I conclude that local disorder or disease of the gall-bladder is not a cause of migraine but a result of it. It appears possible that an initial stasis of bile in the gall-bladder due to the migraine may lead to secondary stone formation and chronic cholecystitis. If this is indeed the sequence of events it is further evidence in favour of the view, originally put forward by Naunyn, that biliary stasis is at least one important factor in the causation of gall-stones. Further, if the bilious type be regarded as forming approximately half the cases of migraine, some 35 per cent. of all migraine patients might be expected to develop some disorder of the biliary tract. It is certainly of importance and interest to note how considerable a proportion of patients of later life, suffering from gall-stones or cholecystitis, give a history on careful questioning of typical migraine in earlier life and in their family.

THE LIVER

It is possible that a primary hepatic disorder may in some cases have caused the changes found by biliary drainage and radiography. In this case both gall-bladder stasis and gall-stone formation might be secondary to such liver dysfunction. If this were so, a hepatic cause might be the actual cause of the migraine attacks. It is significant that in two patients after cholecystectomy, biliary drainage led to characteristic migraine attacks similar to those the patients usually had. It is certain that magnesium sulphate injected into the duodenum leads to stimulation of the liver as well as to emptying of the gall-bladder (Leischner and others).

The problem of liver function in migraine is, however, a particularly difficult one. In two cases only did the findings on biliary drainage resemble those I have observed in some cases of cirrhosis of the liver, but I have also noted that even in the presence of gross hepatic disease this test may show no abnormality. Similarly, I have carried out the lævulose-tolerance test (Table I.) in six cases of migraine (between attacks) and found indefinite evidence of disorder in one only. It will be seen that in one case (No. 5) only was the rise in blood-sugar greater than 25 mg., which may be taken as the lowest figure suggesting hepatic deficiency. It is not to be expected that such a test as this would demonstrate slight degrees of liver dysfunction, particularly during the period between migraine attacks.

TABLE I.—*Lævulose-tolerance Test in Migraine*

(40 g. lævulose by mouth)

Case	Age.	Sex.	Fasting blood-sugar. Per cent.	Blood-sugar: time after administration of lævulose.		Max. change.
				1 hour.	2 hours.	
1	52	F.	0·090	0·100	0·089	10 mg.
2	27	F.	0·100	0·100	0·105	0 ,,
3	41	F.	0·085	0·090	0·090	0 ,,
4	29	F.	0·110	0·120	0·120	10 ,,
5	38	F.	0·075	0·110	0·090	35 ,,
6	51	M.	0·095	0·100	0·105	0 ,,

It is, moreover, probable that if indeed some primary hepatic dysfunction is at the root of certain migraine attacks and the subsequent development of gall-bladder disease or gall-stones, any biliary or pigmentary changes we may detect are merely indications of some concomitant change in another at present unknown respect. In this connexion I am investigating the cholesterol in the blood during and between attacks of migraine, and hope to publish these results at a later date.

Treatment

If, however, as these investigations suggest, migraine attacks can be caused by local action through the biliary mechanism, and if disease or dysfunction of the gall-bladder be regarded as secondary to such attacks and not as causative, it seems worth while to study the effect of treatment directed towards influencing liver function. For this purpose I have utilised preparations of bile salts given by mouth. I have noted that a bile salt solution given intravenously causes an increased flow of pale liver or bile-duct bile, but does not frequently cause the gall-bladder to empty its concentrated B bile. Its action is thus at least as much a stimulant one upon the liver as upon the gall-bladder.

It is further possible that if some metabolic dyscrasia, as suggested by Collier, be the explanation of many cases of migraine, some change in the metabolism of the bile salts might be concerned in such dyscrasia. We have little knowledge as to the precise rôle in the body of the cholates and cholesterol or the exact part played by the liver in this respect, partly owing to the lack of an accurate means of estimating the quantity of bile salts in the blood. Bile-salt metabolism is, however, probably of at least as great or greater importance to the body than that of the bile-pigments with which most of our methods of liver function tests are concerned. Many investigations have suggested that it may be intimately concerned with both carbohydrate and calcium metabolism, as well as other important metabolic activities. It was, therefore, also in the hope of altering some possible "cholic acid dyscrasia" as well as of stimulating hepatic secretion that treatment by bile salts was undertaken.

RESULTS

There are unfortunately few conditions in which it is more difficult to draw conclusions from the effects of treatment than migraine. Not only may the attacks alter or cease spontaneously, but the influence of suggestion is almost impossible to exclude, and is of course of the greatest importance. Thus in the cases here described the psychological effect of the mere passage of the duodenal tube must be taken into account as well as other factors that cannot be controlled, such as the onset of the menopause and absence of nervous excitement. I have therefore merely indicated the effects of treatment with bile salts in 22 patients who have been observed for periods of from nine months to three years. This is admittedly too short a period for any final opinion on the value of the treatment. A number of patients under treatment for a shorter period have not been included, though 5 of these have had no attacks for periods of three to six months. In most cases capsules of the sodium glycocholate have been ordered in doses varying from grs. 2 to grs. 20 t.d.s., but in a few an unofficinal preparation, Decholin, has been used instead (one to six tablets daily) after food. This treatment has been maintained between attacks, and in most cases double doses have been advised if an attack has been threatening. The effect has appeared to be definitely greater when large doses have been employed, but in only two cases have even such big doses as grs. 60 of the sodium glycocholate a day caused diarrhœa or any digestive disorder. One of these patients, however, was unable to take a dose of grs. 2 b.d. without severe diarrhœa and nausea.

In most cases no other treatment was given, except in some the addition of glucose, especially when attacks appeared to be beginning. There were no special regulations about diet except for three patients who themselves regarded some special item of diet as provoking attacks. No change of life as regards environment or nervous stimuli was made. In seven cases the patients were at about the menopause, and in one case pregnancy and childbirth occurred during the period of observation; the latter factor tends particularly to lessen the frequency and intensity of attacks, but in a large proportion of patients attacks are more severe at the time of the climacteric.

It will be seen from Table II. that of the 22 patients 19 (or 86 per cent.) showed considerable improvement, and of these 9 had no further attacks at all while under treatment, and 4 were free for periods of one year or longer.

In the literature I have found only a few references to the treatment of migraine with bile-salt preparations. Muller records one patient remaining free of attacks for five months whilst taking decholin. Leischner also mentions two patients in whom improvement with this preparation occurred during periods of nine and five months' observation respectively. Several authors, however, report benefit from other measures directed towards biliary function, notably by repeated biliary drainage. Thus Haug and Wohrmann record "long-lasting" success in 50 to 60 per cent. of 200 patients treated in this way; McClure and Huntsinger great improvement in 24 of 29 patients treated by weekly duodenal drainage; and Vallery-Radot and Blamoutier in 15 of 24 patients. Rook, using large doses (ʒ2 to 4 of 50 per cent. solution) of magnesium sulphate by mouth, also reports relief of attacks in five cases.

TREATMENT OF THE ATTACK

Many drugs have been advocated and in particular the vasodilator drugs, such as sodium nitrite. I have found, however, that adrenaline—a vasoconstrictor—has been very much more successful in my hands. I have given adrenaline subcutaneously and as early in the attack as possible. The usual dose has been

♏ 10 of the 1/1000 solution, but ♏ 15 or ♏ 20 has sometimes been given, in which case it was injected slowly, as Hurst has advised for asthmatic attacks. Of 14 attacks (9 patients treated), 10 have been completely aborted, 3 definitely ameliorated, and 1 only unaffected. The later the injection is given the larger it should be, but the less effective is its action.

Although migraine is widely regarded as allergic in origin, perhaps akin to a cerebral angio neurotic œdema, it is surprising how little mention appears of the use of adrenaline in treatment. It is not mentioned in most of the larger text-books or original papers on this subject (Jelliffe and White, Nattrass, Curschmann, and others). The fact that in certain cases at least it is capable of checking the migraine attack suggests that some vasodilatation rather than a vasoconstriction of the cerebral vessels may be at fault, though any direct effect of adrenaline upon these vessels is uncertain, and of course the possibility of suggestion cannot entirely be excluded. The few opportunities that I have had of treating the actual attacks with adrenaline make me feel, however, that its effect may be as beneficial as in asthma provided a sufficient dosage is employed.

TABLE II

Age.	Sex.	Frequency of attacks before treatment and duration of attacks.	Period of observation.	Dosage (sodium glycocholate).	Number of attacks since beginning of treatment.	Presumed approx. number of attacks during equal time period before treatment.	Difference in number of attacks.	Comments.
36	F.	Weekly (12 hours)	1 year.	grs. 3 alt. days.	Free 3 mths. Weekly attacks when treatment omitted for 4 mths. No attacks 5 mths. on resuming treatment.	50	30 less.	Improved.
43	F.	3–4 weeks (12–24 hours).	1 ,,	grs. 20 t.d.s.	6	12–15	6 less.	,,
27	F.	3–4 days (12–24 hours).	16 mths.	grs. 5 t.d.s.	7	60–70	50–60 less.	Greatly improved.
41	F.	1–4 weeks (1–2 days).	14 ,,	,, ,,	No attacks.	10–15	10–15 less.	,,
32	F.	2–3 weeks.	18 ,,	Decholin tabs. 4 daily.	,, ,,	20–30	20–30 less.	,,
43	F.	3–4 weeks (3 days).	20 ,,	grs. 15 b.d.	1 (when drug omitted).	20–30	20–30 less.	,,
39	F.	1–2 weeks (1 day).	15 ,,	Decholin 1 tab. daily. 2 tab. daily.	Free 2 mths. 2 attacks (12 mths.).	30–40	30–35 less.	Improved.
23	F.	2–3 weeks (1 day).	9 ,,	grs. 3 t.d.s.	No attacks.	10–15	10–15 less.	Greatly improved.
48	F.	2–3 weeks (1–2 days).	10 ,,	grs. 5 t.d.s.	,, ,,	10–15	10–15 less.	,,
52	M.	2–3 weeks (12–24 hours).	2 years.	grs. 5 intermittently.	No attacks (2 warded off).	25–35	25–35 less.	,,
39	F.	3–4 weeks (1–2 days).	2½ ,,	grs. 5 t.d.s. intermittently.	4 attacks—none for last 2 years.	30–40	25–35 less.	,,
63	F.	5–8 days.	1 year.	grs. 5 t.d.s.	2	40–50	40–50 less.	,,
32	F.	2–3 weeks (12 hours).	10 mths.	grs. 3 t.d.s. intermittently.	No attacks.	15–20	15–20 less.	,,
24	F.	1–2 months (1–2 days).	2½ years.	grs. 5 t.d.s. intermittently.	,, ,,	15–30	15–30 less.	,, (pregnancy).
31	M.	1–3 months (irregular).	2 ,,	Decholin 1 tab. b.d. Irregularly. 1 tab. t.d.s.	No attacks 8 mths. 2 attacks. No attacks 1 year.	10–15	10–12 less.	Improved.
42	M.	8–10 days.	2 ,,	grs. 5 t.d.s. irregularly.	No attacks.	50–60	50–60 less.	Greatly improved.
40	F.	Monthly (2–3 days).	3 ,,	grs. 3 t.d.s. for 4 mths. and irregularly.	Attacks less severe, every 2–3 mths. Last 8–12 hours.	30–40	15–20 less.	Improved (menopause).
26	F.	2–3 weeks.	1 year.	grs. 5 b.d.	No relief, unable to take bile salts.	15–20	No change.	I.S.Q.
44	F.	1–2 ,,	1 ,,	grs. 5 t.d.s.	Free 8 mths. Return monthly attacks, less severe.	20–30	15–20 less.	Improved.
41	F.	3–4 ,,	3 years.	Decholin 1 t.d.s.	4 mths. free—return I.S.Q.	40–50	No change.	I.S.Q. (menopause).
26	F.	2–3 ,,	7 mths.	grs. 3 t.d.s.	2 attacks in 7 mths.	10–15	10–12 less.	Improved.
36	F.	1–3 ,,	15 ,,	,, ,,	No improvement.	25–30	No change.	I.S.Q. ? duodenal ileus.

SUMMARY: 22 patients.

No further attacks under treatment	8	Definite improvement 18.
Attacks less frequent and less severe	10	
Temporary relief	1	
No change	2	
Unable to continue treatment	1	

Case Records

CASE 1.—*Cholecystectomy.* Female, aged 30. Bilious attacks since childhood. Onset with partial amblyopia lasting half to two hours, followed by bilateral headache and profuse biliary vomiting; occasionally slight abdominal pain. Attacks at first every two to three months, later about once a week. Well in between attacks until five months before operation, when some persistent indigestion. Operation (December, 1929); three gall-stones present; gall-bladder removed; no evidence of inflammation microscopically. Biliary drainage (June, 1930): rapid flow 50 c.cm. light bile, followed by nausea and vomiting. Since operation: attacks unaltered (one year); recurring every fortnight. Indigestion relieved. Ordered sod. glycocholate grs. 5, t.d.s. No further attacks (five months).

CASE 2.—*Cholecystectomy.* Female, aged 43. Since childhood periodic attacks of severe right-sided headache, followed by profuse biliary vomiting and preceded by flashes in front of eyes. Occurring once a month, especially when overtired; sometimes brought on by taking eggs or milk. For last eight years some epigastric discomfort, constipation, and flatulence. Father, mother, and one sister suffer from bilious attacks. Biliary drainage: 25 c.cm. dark B bile obtained; headache and vomiting during later flow of bile. Operation (March 14th, 1932): three almost pure pigment stones; gall-bladder healthy naked-eye; cholecystectomy. After operation patient continued to have periodic bilious attacks of about the same frequency, unaltered by the operation; flatulence and indigestion relieved. Ordered sod. glycocholate grs. 3, t.d.s. Since then one attack only in four months.

CASE 3.—*Cholecystectomy.* Female, aged 37. Bilious attacks since childhood. Mother has migraine. Onset with headache and photophobia, followed by severe biliary vomiting, occurring about every four to six weeks. Last seven years some flatulence, abdominal discomfort, and nausea between attacks, dating from pregnancy. Biliary drainage: no bile obtained; discomfort in right hypochondrium. Cholecystogram: no gall-bladder shadow obtained. Operation (March 12th, 1932): numerous cholesterol pigment calculi; very slight cholesterosis of gall-bladder; cholecystectomy. Biliary drainage (June 12th): 10 c.cm. pale bile withdrawn, followed by vomiting. After operation frequent attacks of headache, nausea, and vomiting. Ordered sod. glycocholate grs. 3, t.d.s. Two attacks only since beginning treatment (four months).

CASE 4.—*Cholecystectomy.* Female, aged 58; married. Attacks of severe headache brought on especially by excitement; preceded by feeling of extreme hunger, associated with drowsiness and bright lights in front of eyes. Followed by profuse biliary vomiting. Periodic attacks for 22 years; well between attacks, except for constipation and some flatulence after food during the two years preceding operation. Jaundice for three days 12 years previously. No colic. No abdominal pain. Biliary drainage: 75 c.cm. light bile withdrawn in 15 minutes, then complained of vertigo and flashes before eyes; vomited at 20 minutes. Operation: eight gall-stones in gall-bladder, slight chronic inflammation of its walls; cholecystectomy. No further attacks since operation (four months).

CASE 5.—*Cholecystectomy.* Male, aged 30. Attacks of severe biliary vomiting since age of 20. Very drowsy before attacks and constipated. Recurring about every two months, sometimes oftener; last about two days. In some attacks temperature up to 101° F. Some abdominal discomfort during attacks only. Well in between; attacks particularly brought on by nervous worry. Father has similar attacks. Pyelography (1922): normal. Appendicectomy (1923): no change in symptoms. Cholecystectomy (1927): one large stone removed. No change in frequency or character of attacks since operation (three years). Biliary drainage (1930): immediate flow good volume thin bile. Excess of urobilin and albumin. 1933: treated with glucose and bile salts; no attacks for 8 months, and only two attacks during last 14 months.

CASE 6.—*Cholecystectomy.* Female, aged 40. Attacks since age of 25 of intense left-sided headache, preceded by sparks before eyes and followed by severe biliary vomiting. Occurring every two or three weeks and lasting two or three days. Sister has migraine. Cholecystectomy (1928): details not known; no change in frequency or severity of attacks since operation (three years). Biliary drainage (1931): small volume light bile obtained; flashes before eyes and left-sided headache three minutes after beginning of bile flow, later nausea and vomiting. Treatment: not undertaken.

CASE 7.—*Duodenal obstruction; cholecystectomy.* Female, aged 39. Two attacks biliary colic, the last associated with jaundice. Gall-bladder drained August 20th, 1929. For five months since operation attacks every three to four days of severe frontal headache with nausea and biliary vomiting, lasting four to twelve hours; no jaundice, no abdominal pain. Gall-bladder removed January, 1930. No calculi, very slight evidence of inflammation; adhesions round duodenum. Since last operation no further attacks (three years).

CASE 8.—Female, aged 59. Attacks since age of 15 of severe right-sided and occipital headache, retching, and vomiting; persistent yawning before attacks, flashes before eyes, and photophobia. Attacks especially brought on by worry and by eating eggs; mother similar attacks. Biliary drainage: traces bile only withdrawn. No B bile. Cholecystogram: faint shadow. Barium meal: some colon spasm (whole tract). Treated with decholin, one tablet t.d.s. Two attacks only during seven months' observation; reports complete freedom during last eight months.

CASE 9.—Female, aged 43. For 30 years attacks of severe headache, mainly left-sided, and profuse biliary vomiting, preceded by feeling of great hunger and craving for sugar. No ocular symptoms; mother and grandmother similar attacks. Well between attacks; occurring every one to two weeks. Biliary drainage: 20 c.cm. dark bile withdrawn; severe headache at onset of flow; nausea and vomiting at end of 25 minutes; bile shows excess urobilinogen and slight excess albumin. Cholecystogram: large faint shadow with slow emptying after fatty meal. Treated with bile salts for two years; has only had eight mild attacks, three during one month when no bile salts were taken.

CASE 10.—Male, aged 52. Periodic attacks left-sided headache and nausea since age of 15; occurring every two to three weeks, preceded by intense yawning. Well between attacks; no ocular symptoms; one sister similar attacks. Much distaste for fats before attacks; onset with hyperæsthesia left side of scalp. Biliary drainage: good flow bile, 40 c.cm. fairly dark B bile; bile shows excess urobilinogen, no excess albumin. Cholecystogram: very faint shadow. Treated with bile salts and glucose for two years; no further attacks; has been able to ward off several impending attacks by taking double dose of bile salts.

CASE 11.—Female, aged 43. Bilious attacks since aged 6. Anorexia before attacks, spectra before eyes, headache, followed by severe biliary vomiting; last two to three days, occurring about every four weeks. Well between attacks; grandmother and daughter similar attacks. Biliary drainage: slow flow, small volume pale bile; no concentrated bile; headache at onset of flow, with nausea at 15 minutes; bile on Ehrlich's test gives canary yellow colour, no excess albumin. Cholecystography: no gall-bladder shadow obtained. Treated with bile salts and glucose. One attack only in two years (when treatment omitted).

CASE 12.—Female, aged 47. For 13 years attacks about every ten days of headache and severe biliary vomiting, especially brought on by chill or worry. Very drowsy before attacks and constipated; in several attacks aphasia at onset. Jaundice aged 21. No ocular symptoms. Biliary drainage: slow flow bile; 30 c.cm. dark B bile; shows excess urobilinogen and slight excess albumin. Cholecystogram: faint shadow. Treatment not undertaken.

CASE 13.—Female, aged 36. Bilious attacks since childhood; occurring about every four weeks, especially brought on by excitement. Flashes of light at onset, re sensitive to radium they are so inaccessible that is impossible to obtain a satisfactory distribution. n most regions our method of intubation works well, nd it is almost always possible to enable the patient o swallow. At the cardiac orifice even this fails, nd the surgeon is usually driven back upon a astrostomy. Recently we have been attempting full transthoracic exposure, with the insertion of eeds around the growth, and the results have been ncouraging.

As incision in the ninth intercostal space extends long its whole length, and through this, by forcible eparation of the ribs, the thoracic cavity is opened up. Intratracheal anæsthesia is obviously essential, and it is of vital importance that just before the pleura is opened there should be a sufficient positive pressure to prevent any sudden collapse of the lung. Very free access to the lower œsophagus is usually obtained, and if it is desired to expose the cardia itself, the diaphragm may be divided from the œsophagus forwards to the tenth costal cartilage without risk. Manipulations are much facilitated by producing temporary paralysis of the diaphragm by injecting the phrenic nerve at the point where it passes from the pericardium to the diaphragm. If it is desired to expose the œsophagus fully, this is easily accomplished by dividing the pleura over it, when it peels out readily from the cellular tissue in which it lies. If, however, it is possible to avoid this it is better to do so, as the unavoidable interference with the vagus causes a certain amount of shock. All that is required is a sufficient exposure to ensure that the seeds can be inserted in a uniform group into and around the tumour. The number required will vary with its extent, but 40 seeds of 0·5 mc. will be ample for any case that is capable of treatment. Before closing the chest an assistant passes a bougie from the mouth which is guided through the growth by the fingers of the operator.

The tissues are now carefully closed over the œsophagus, the diaphragm sutured, and the chest wall closed, the two ribs being approximated by heavy catgut sutures encircling them. The entire absence of shock (unless the vagus is disturbed), the comfort of the patient next day, and the complete freedom from pulmonary complications are very remarkable.

Man, aged 66. Had complained for two weeks of difficulty in swallowing, and was now only able to swallow fluids with considerable difficulty. Radiography showed a carcinomatous stricture in the region of the cardiac orifice. On thoracic exploration a small carcinoma was found on the anterior wall of the œsophagus just above the diaphragm, into the substance of which a small extension had occurred. On opening the diaphragm a few doubtful glands were found, but the growth did not extend below this level. The pleura was divided over the œsophagus which was completely freed, and 30 gold seeds were attached to its surface by means of minute strips of gauze soaked in Mastisol. The œsophagus was replaced and the pleura closed over it. The diaphragm and chest were closed as usual after passage of a bougie under digital control. Swallowing rapidly improved and at the end of three weeks he was able to take ordinary food. He remained in good health and at work for six months when he died quite suddenly, probably from hæmorrhage.

These instances will suffice to illustrate a method which is peculiarly flexible and which can be applied in situations which at first sight appear to be inaccessible. Even where cure is impossible it enables one to give a relief which otherwise could not be obtained, whilst occasionally it is followed by a success for which one scarcely dared to hope. The trivial degree of trauma involved is sometimes of vital importance, since in many of these patients resistance is lowered to the point of danger. I would only warn the surgeon that although the trauma may be slight, the technique involved is not so easy as might at first appear, and that success can only be obtained by an accurate dosage—the result of wide experience—and a precision which only comes from practice.

A NOCARDIAL (STREPTOTHRIX) ORGANISM

IN FOUR RECENT CASES OF ACHOLURIC JAUNDICE

By Alexander George Gibson, M.D. Oxf.,
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PHYSICIAN TO THE RADCLIFFE INFIRMARY AND READER IN MORBID ANATOMY IN THE UNIVERSITY OF OXFORD

In a recent book[1] the grounds of the mycotic hypothesis for certain of the chronic splenomegalies were critically examined and the conclusion arrived at was that the causal organism was probably a streptothrix of the genus nocardia.

Within the last three years the spleens of four cases of acholuric jaundice have been examined bacteriologically after surgical splenectomy and three of these have proved positive; in addition a blood culture after long incubation from a case already reported proved to be positive and is included.

CULTIVATION OF THE ORGANISM

The organism that is being looked for in these cultures is aerobic, therefore no pains have been taken to isolate any anaerobic organisms. In making routine subcultures of the nocardial organisms that have been previously isolated it had been found that a modification of Hibler's brain broth[2] was slightly better than the serum broth which had hitherto been used. A further trial of peptone veal broth in which a portion of spleen was immersed proved to be again a little more stimulative of growth than any other medium. The method now adopted and found satisfactory is as follows. To each tube of ordinary peptone veal broth is added some precipitated calcium carbonate, then a small portion of fresh human spleen obtained from a post-mortem, and the whole autoclaved at 120° C. The result is a tube of clear broth, but adhering to the sides is usually some coagulated fibrin. The spleen and calcium carbonate settle down to the bottom, and the latter is occasionally adherent to the sides.

The effect, on the growth of those organisms previously isolated, of spleen tissue from different post-mortems appears to be the same, but no spleen is used that is not firm and free of obvious disease, such as sepsis. The spleen, for instance, of a case of congestive cardiac failure appears to give the same result as that from pulmonary tuberculosis as tested upon strains under continuous cultivation. Made in this way the pH value of the autoclaved medium is 7·4, whereas the pH of the peptone veal broth in use is 7·6. When properly capped these tubes remain sterile for an indefinite period, and in making cultures from the spleen pulp are watched for a year or more.

In making cultures from spleens surgically removed, portions of the spleen pulp are transferred aseptically and dropped into the spleen broth. In all cases the siderotic nodule (Gandy-Gamna) is excised in preference to the general spleen pulp. The first indication of growth is the presence of minute fluffy balls just above the solid spleen. These rise up the sides and gradually form a zone at or beneath the meniscus of the fluid.

of radon gas, and the wall gives 0·3 mm. of gold screening, which appears to be ample for these small amounts. As a rule no attempt is made to remove the seeds, which even in the palate cause no disturbance.

The seeds are inserted by a special apparatus which I introduced some years ago and which has the advantage of simplicity. It consists of a long hollow needle, a rotating barrel to carry ten seeds, and a stilette by means of which they can be delivered to the tissues at the point of the needle. With this instrument it is possible to insert the seeds with great rapidity and with remarkable accuracy, for as it is not necessary to withdraw the needle they can be deposited in long rows end to end, at any interval desired. The most even radiation is of course obtained where seeds are introduced in large numbers and distributed uniformly. With the minute seeds I have described it is thus easy to obtain, through the effects of crossfire, a very uniform field of radiation, the first essential of success in any form of radium therapy.

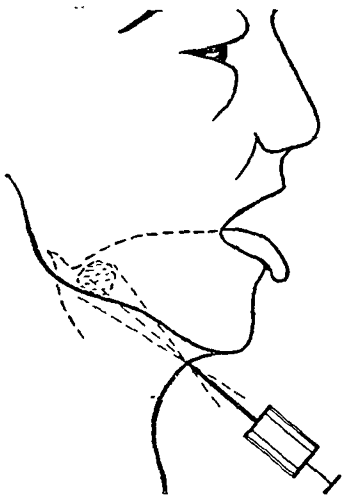

FIG. 1.—Tumour of base of tongue.

THE BASE OF THE TONGUE

The first cases to which I wish to refer are those of carcinoma at the base of the tongue. The site is a common one, the region is most inaccessible, and the tumours are specially sensitive to radium. Even when first seen the tumour may involve the epiglottis or extend to the fauces or the pharynx. In most cases, however, it will still be possible to draw the tongue well forward and to obtain a view of the growth or at least to define its limits accurately by palpation. The problem is now to implant a uniform zone of seeds on the deep surface of the tumour so as to irradiate its growing edge. This is very easily accomplished from the neck below the jaw by first making a small puncture with a tenotomy knife and then passing the needle of the introducer through the muscle of the root of the tongue. As a rule the carcinoma is a deeply excavated ulcer, but with the guidance of a finger inserted into this one can easily form a large field of seeds beneath and around it (Fig. 1). Very small seeds should be used and a total dose of 10 mc. will usually be sufficient. With a limited growth the local results are remarkably good, and fortunately this is a region in which glandular metastases are uncommon.

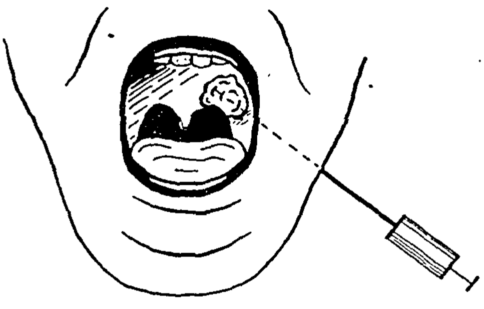

FIG. 2.—Tumour of palate.

THE SOFT PALATE

The soft palate is another region favourable to radium treatment but to which a convenient means of access is not obvious. It can however be reached with very great ease from a point in the neck just below the angle of the jaw, and I now never adopt any other method. This point lies in the plane of the soft palate, and a needle inserted here can be passed into any portion of the soft palate on the same side without entering the mouth (Fig. 2). Moreover, the palate tolerates the presence of these small seeds perfectly and I have experienced no trouble from their introduction. Weak seeds must be used and the total dose limited to 10 mc. in an ordinary case.

Man, aged 55. Had complained of soreness in the throat for three months. A fungating carcinoma extended down from the posterior margin of the hard palate on the left side, and outwards to the posterior end of the alveolus. Six 1·5 mc. seeds were inserted, making a total dose of 9 mc., and the glands in the right side of the neck were dissected out. The growth disappeared completely in 14 days. Healing was complete in a month, and has remained perfect for five years. (In a similar case we should now insert 12 seeds of 0·5 mc.)

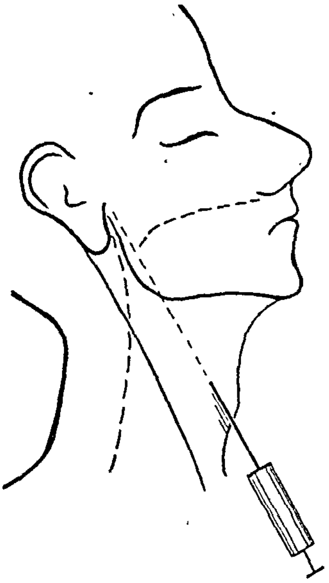

FIG. 3.—Retropharyngeal tumour.

A short time ago I was faced with the difficult problem of a large post-nasal carcinoma, arising from the posterior wall of the pharynx and forcing the soft palate down to such an extent that the patient could not swallow and could scarcely breathe. A gland in the neck had already been removed and showed the growth to be an oat-celled carcinoma of a responsive type. Shrinkage of the tumour would give immediate relief, but the problem was one of access. When the head was fully retracted it was seen that a point in the side of the neck, two inches below the jaw, lay in the same plane as the front of the bodies of the upper cervical vertebræ, and it appeared that from this point the long needle of the introducer could be passed into the growth on its longer axis (Fig. 3). Working from symmetrical points on the two sides 30 seeds were introduced in two radiating fans overlapping one another, and an arrangement of peculiar symmetry and uniformity was obtained. The tumour disappeared in three weeks and the patient was completely relieved. Unfortunately the glandular involvement spread and could not be checked, but there was never any local recurrence. As a means of reaching the region behind the nasopharynx the method is most satisfactory.

THE ŒSOPHAGUS

The treatment of œsophageal carcinoma by radium has proved disappointing, for although these tumours are sensitive to radium they are so inaccessible that it is impossible to obtain a satisfactory distribution. In most regions our method of intubation works well, and it is almost always possible to enable the patient to swallow. At the cardiac orifice even this fails, and the surgeon is usually driven back upon a gastrostomy. Recently we have been attempting a full transthoracic exposure, with the insertion of seeds around the growth, and the results have been encouraging.

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The tissues are now carefully closed over the œsophagus, the diaphragm sutured, and the chest wall closed, the two ribs being approximated by heavy catgut sutures encircling them. The entire absence of shock (unless the vagus is disturbed), the comfort of the patient next day, and the complete freedom from pulmonary complications are very remarkable.

Man, aged 66. Had complained for two weeks of difficulty in swallowing, and was now only able to swallow fluids with considerable difficulty. Radiography showed a carcinomatous stricture in the region of the cardiac orifice. On thoracic exploration a small carcinoma was found on the anterior wall of the œsophagus just above the diaphragm, into the substance of which a small extension had occurred. On opening the diaphragm a few doubtful glands were found, but the growth did not extend below this level. The pleura was divided over the œsophagus which was completely freed, and 30 gold seeds were attached to its surface by means of minute strips of gauze soaked in Mastisol. The œsophagus was replaced and the pleura closed over it. The diaphragm and chest were closed as usual after passage of a bougie under digital control. Swallowing rapidly improved and at the end of three weeks he was able to take ordinary food. He remained in good health and at work for six months when he died quite suddenly, probably from hæmorrhage.

These instances will suffice to illustrate a method which is peculiarly flexible and which can be applied in situations which at first sight appear to be inaccessible. Even where cure is impossible it enables one to give a relief which otherwise could not be obtained, whilst occasionally it is followed by a success for which one scarcely dared to hope. The trivial degree of trauma involved is sometimes of vital importance, since in many of these patients resistance is lowered to the point of danger. I would only warn the surgeon that although the trauma may be slight, the technique involved is not so easy as might at first appear, and that success can only be obtained by an accurate dosage—the result of wide experience—and a precision which only comes from practice.

A NOCARDIAL (STREPTOTHRIX) ORGANISM

IN FOUR RECENT CASES OF ACHOLURIC JAUNDICE

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In a recent book[1] the grounds of the mycotic hypothesis for certain of the chronic splenomegalies were critically examined and the conclusion arrived at was that the causal organism was probably a streptothrix of the genus nocardia.

Within the last three years the spleens of four cases of acholuric jaundice have been examined bacteriologically after surgical splenectomy and three of these have proved positive; in addition a blood culture after long incubation from a case already reported proved to be positive and is included.

CULTIVATION OF THE ORGANISM

The organism that is being looked for in these cultures is aerobic, therefore no pains have been taken to isolate any anaerobic organisms. In making routine subcultures of the nocardial organisms that have been previously isolated it had been found that a modification of Hibler's brain broth[2] was slightly better than the serum broth which had hitherto been used. A further trial of peptone veal broth in which a portion of spleen was immersed proved to be again a little more stimulative of growth than any other medium. The method now adopted and found satisfactory is as follows. To each tube of ordinary peptone veal broth is added some precipitated calcium carbonate, then a small portion of fresh human spleen obtained from a post-mortem, and the whole autoclaved at 120° C. The result is a tube of clear broth, but adhering to the sides is usually some coagulated fibrin. The spleen and calcium carbonate settle down to the bottom, and the latter is occasionally adherent to the sides.

The effect, on the growth of those organisms previously isolated, of spleen tissue from different post-mortems appears to be the same, but no spleen is used that is not firm and free of obvious disease, such as sepsis. The spleen, for instance, of a case of congestive cardiac failure appears to give the same result as that from pulmonary tuberculosis as tested upon strains under continuous cultivation. Made in this way the pH value of the autoclaved medium is 7·4, whereas the pH of the peptone veal broth in use is 7·6. When properly capped these tubes remain sterile for an indefinite period, and in making cultures from the spleen pulp are watched for a year or more.

In making cultures from spleens surgically removed, portions of the spleen pulp are transferred aseptically and dropped into the spleen broth. In all cases the siderotic nodule (Gandy-Gamna) is excised in preference to the general spleen pulp. The first indication of growth is the presence of minute fluffy balls just above the solid spleen. These rise up the sides and gradually form a zone at or beneath the meniscus of the fluid.

THE CASES

The main facts about the cases are as follows:—

Ada K.—This case has been detailed previously.[3] It was one of acquired acholuric jaundice, and the patient died under observation in a hæmolytic crisis. Six blood cultures altogether had been taken at different periods of the illness, using trypsin broth, serum broth, and brain broth. Examination of the broth from time to time microscopically showed doubtful bacterial forms. Out of a total of 70 tubes macroscopic growth occurred in three. Two of these were moulds seen after 13 to 118 days respectively. The other was a nocardial organism identified as such after 396 days. The features of growth in spleen broth are those of *Nocardia splenica.*[4]

Mrs. A.—The patient, a married woman aged 25, had been jaundiced, as well as paralysed on the right side, since birth. She came of a family in which jaundice had been present in three generations. Her grandfather, father, an uncle, two sisters, and a brother were jaundiced. All four members of the last generation had had their spleens removed. She had no complaints and had never suffered from a crisis. She complained that she was more yellow when she felt run down.

The sclerotics were yellow, and there was generally slight icterus though the cheeks were red. The spleen was just palpable. Van den Bergh's reaction was direct positive; there was 1 unit of bilirubin in the serum. The fragility was little altered from the normal. It started from 0·44 per cent. of saline and was complete at 0·36 per cent. Blood count: hæmoglobin, 75 per cent.; red cells, 3,360,000; white cells, 10,000.

Mr. Harold Upcott, of Hull, to whom I am indebted for the clinical details and the opportunity to examine the spleen, performed splenectomy on June 10th, 1930, and it was received packed in sterile wool on the 11th. The organ was slightly enlarged and measured 15 × 0·5 × 7·5 cm. No adhesions were visible. On section the substance was occupied by deep red firm pulp with few Malpighian bodies and few trabeculæ. Several small thickened arteries stood out from the cross section. There were no thromboses or hæmorrhages. In serial sections made under aseptic conditions 15 minute buff-coloured specks subsequently identified as siderotic (Gandy-Gamna nodules) were excised, and with other portions placed in 34 culture tubes (12 serum broth, 18 brain broth, and 4 spleen broth). Subcultures were made at intervals from some of the tubes, and they were examined carefully for several months. After 60 days in one tube only there occurred a growth of a nocardial organism which on subculture grew in the way described for *Nocardia splenica.* Four tubes out of the series of 34 were contaminated.

Results of Culture from Three Members of the F. Family.—This family has been under observation since 1921, and has been reported by Mr. Joyce and Dr. Mills.[5] I am greatly indebted to both these gentlemen for their kindness in letting me examine the spleens. In addition to what they reported, the grandmother of the children had gall-stones, and a female cousin on the grandmother's side is reported to have had jaundice from birth. There is therefore a history of jaundice or a condition of the gall-bladder in three generations.

Dr. Mills kindly brought the spleens from Reading to Oxford.

I., male, aged 20. The specimen received the day of the operation, March 19th, 1931, was a portion of a large spleen without any alteration in the capsule. On section the pulp was dark red, Malpighian bodies could be distinguished but were not prominent or enlarged, and there was no increase in trabeculæ. Scattered throughout in relation to the trabeculæ were minute pale buff-coloured streaks and dots, which on microscopic examination showed the structure of a siderotic (Gandy-Gamna) nodule. Altogether 48 culture tubes of spleen broth were inoculated aseptically from the buff-coloured points on March 19th, 1931. These were observed for several months, and subcultures were made from time to time. No growth, however, was obtained.

II., male, aged 18. The spleen was removed by Mr. Joyce on April 7th, 1932, at 12 noon, and was examined by me at 2 P.M. on the same day. It measured 19 × 6·5 × 11·5 cm., and its weight was 520 g. The substance was not firm and resembled that of the normal spleen. There were a few minute tags of fibrous tissue from adhesions that had been severed attached to the capsule. On section the pulp was deep red, firm, and Malpighian bodies were seen. Buff-coloured minute nodules were sparsely scattered throughout. Microscopically the structure was the same as in Case I. Altogether 28 tubes were inoculated. Subcultures of these were made eight days after, and both series were observed. A nocardial organism grew in one of each series and from different portions of the spleen in 44 and 131 days respectively from the first inoculation. Both these strains grew easily in spleen broth after they had grown sufficiently in the original tube. Six of the tubes in each series were contaminated, one with an aspergillus.

III., male, aged 14. Splenectomy was performed by Mr. Joyce on July 11th, 1932. The spleen was brought to me by Dr. Mills at 5.30 P.M. on the same day. It was fairly firm, measured 12 × 7 × 4 cm., and weighed 159 g. The surface was smooth with a few thickenings at points on the surface. There was a small accessory spleen at the hilum. On the surface the pulp was deep red, fleshy, and firm; the Malpighian bodies were enlarged and their limits distinguished with difficulty. Trabeculæ appeared, naked eye, to be increased. No siderotic nodules were found in any part of the spleen on serial section.

Histologically no sign of a siderotic nodule was seen, and the Malpighian bodies showed two types: (1) small with a zone of congestion surrounding it; and (2) large diffuse bodies with generalised congestion. There were a few doubtful hæmorrhages, one of which was underneath the capsule.

Cultures from the general spleen pulp were made into 24 tubes of spleen broth. These tubes were observed for several months, and in one after 56 days there grew a nocardial organism.

REMARKS

The organisms from the four cases have not been studied as to their pathogenicity, but they are identical in their morphological and cultural features with those described elsewhere.[6] They are delicate organisms, they grow best at 37° C., and to be kept alive must be subcultured at least once monthly in some liquid medium; on solid media they cannot be kept continuously alive. The colour of old cultures from Ada K. and Mrs. A. are white; those from the two members of the family F. are a dark cream colour. The total number of nocardial organisms that have been isolated from cases of acholuric jaundice now amounts to six, five of which are still under culture.

The four patients from whom the present cultures have been obtained comprise: (1) an acquired case of acholuric jaundice (Ada K.) that had been studied on two occasions and who died in a hæmolytic crisis; (2) a case of familial acholuric jaundice (Mrs. A.); and (3) and (4) two brothers from a family in which the disease is known to have been present in three generations. The last patient (III., above) presented extremely slight signs of the disease and no enlargement of the spleen; he therefore belongs to the cases that occur in these families and have been occasionally recorded, to which Campbell and Warner [7] drew attention in 1926. The spleen of this case showed but slight variation from the normal in the enlargement of some of the Malpighian bodies, and a few recent hæmorrhages which may have been caused by traction at the operation, and yet this spleen gave a positive culture of a nocardial organism. The inference is that assuming the organism to be the cause of the disease, it may lie dormant or produce little disturbance of health and yet give rise to the slight signs that Campbell and Warner have taken to be the hereditary factor.

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LYMPHOGRANULOMA INGUINALE

(PORADENITIS NOSTRAS)

WITH OBSERVATIONS ON THE PRIMARY LESIONS

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In October, 1932, Stannus[1] suggested that cases of lymphogranuloma inguinale existed in this country but were unrecognised. In the discussion on his paper evidence was given that the disease was almost unknown in the venereal clinics here and the opinion was expressed that these cases were not being missed. It is well known, however, on the Continent, especially in Germany and France, and it is likely to become more prevalent in Great Britain. Therefore early diagnosis is of great importance and some observations on its primary lesions may be advantageous.

The first recorded case in which infection was proved to have been acquired in England was published recently by Stannus and Findlay.[2] Unfortunately in this case the type of primary lesion was not known as, owing to its characteristic rapidity in healing, only a tiny scar marked the site of entry. The primary sores are inconspicuous and are commonly unrecognised. Many observers have described them, including Phylactos[3] in his thesis. Hellerström[4] follows his classification and divides them into four types: papular, ulcerative (this includes herpetiform and erosive lesions), nodular, and what he chooses anatomically to name the "urethritic" variety. All these types are of the same pathogeny, and only vary in degree. When syphilis is excluded, among the 47 cases which he collected only 14 had primary genital lesions, of which 10 were ulcerative, 2 papular, and 2 urethritic. No instance of the nodular variety occurred.

It is of interest therefore to record three recent cases at the London County Council (Whitechapel) Clinic. In two the primary lesion was on the external genitalia, while in the third it was intra-urethral. The importance of this last type of case, in which the intra-urethral primary inoculation causes a urethritis, cannot be over-emphasised, as it is so dangerously infectious and can so easily pass undiagnosed. None of these cases had any of the accompanying balanitis that is sometimes described.

The first case had an ulcerative primary lesion and will be described in full, as it is the second case in England of lymphogranuloma inguinale proved to have been acquired in this country and in which the diagnosis has been confirmed by animal experiments. A second case at the Whitechapel Clinic had a papular primary lesion which was classical in type. A raised infiltrated papule, the size of a pea, protruded from the proximal side of the coronal sulcus in the mid-line of the penis on its dorsal aspect. The epithelium over it was partly denuded, as though by friction, but not of sufficient depth to form an erosion or ulcer. In the third case no obvious lesion presented on the external genitalia, but a scanty, thin, whitish, mucopurulent discharge which exuded from the urethra contained pus and epithelial cells. In spite of numerous tests, no gonococci or other microscopical organisms were found. No infiltration or induration could be felt along the course of the urethra.

In other respects, these three cases possessed the typical adenitis and followed the usual course of lymphogranuloma inguinale. The secretions and the fluid obtained by gland punctures were all repeatedly, but unsuccessfully, dark-grounded for *Spirochæta pallida*, while the Wassermann and Kahn tests were negative over a period of three months. Both syphilis and gonorrhœa were excluded in all three cases.

The infection in Stannus's case was contracted in Soho and treated at the French Hospital which serves that area. Although the Whitechapel Clinic serves a large area, including many rural districts, these cases have come from Dockland. For example, the stoker whose case record follows lives at Limehouse, E.14. This is close to the docks, and it is possible that these men were infected by women who had contracted the disease from sailors who were suffering from climatic bubo, which it is now certain is identical with the lymphogranuloma recognised on the Continent.

CASE RECORD

The patient was an unmarried Englishman, aged 18 years. He had never been abroad and was employed as a stoker on a steam wagon. He was sent for diagnosis to the London County Council (Whitechapel) Clinic on Nov. 25th, 1932 (two months after the case recorded by Dr. Stannus).

Six months before the onset of symptoms he had had clandestine intercourse with an English girl in the East End; he denied subsequent coitus, but this statement seems open to doubt. On or about Nov. 11th, 1932, he noticed a small painless sore on the coronal sulcus to the right of the frenum. This was followed within a few days by a tender, but not painful swelling in each groin, which was increasing in size. He had been feeling "off colour" for some days and complained of constant headache for two days before his first attendance.

On examination he was heavy-eyed and looked ill; his temperature was 99·5° F. and his pulse-rate 120. In the furrow of the coronal sulcus to the right of the frenum was a superficial herpetiform ulcer. This smooth greyish erosion had a non-indurated base with irregular edges. Some healing which had taken place at the margins was indicated by the three small furrows radiating from the lesion. In each inguinal region was a large elongated swelling above the folds of the groins with the long axis parallel with Poupart's ligament. The swelling in the right groin, about the size of a hen's egg, was rather larger than that in the left. The skin over the enlarged glands was in each case red, with a bluish tint, and adherent. On palpation the masses were markedly indurated and tender. At their margins the outlines of individual lymphatic glands could be distinguished. Central fluctuation could not be elicited. No glandular enlargement could be detected elsewhere in the body, nor were the liver or spleen palpable. There was no abnormality in the region of the rectum.

Dark-ground examination of the serum from a scraping of the sore repeatedly failed to reveal the presence of *S. pallida;* the Wassermann and Kahn blood-serum reactions were negative then and subsequently (Dec. 2nd, 1932, and Jan. 5th, 1933). Unfortunately, antigen for Frei's intradermo-reaction was not available.

On Nov. 28th the right inguinal swelling showed central fluctuation. This was aspirated and a few minims of thick whitish pus were withdrawn. Microscopical examination showed many pus cells but no organisms. The cultures were sterile. These tests were subsequently repeated on several occasions after aspiration and the same results were invariably obtained. On Dec. 2nd both groins were aspirated; 2 c.cm. of pus was withdrawn from the left and 5 c.cm. from the right. The right side was aspirated on three occasions and altogether 8 c.cm. of pus was obtained. A total of 9 c.cm. of pus was obtained from the left swelling after aspiration on six occasions.

Treatment consisted in rest, hot fomentations to both groins, and frequent aspirations when fluctuation was obtained. Two intramuscular injections of manganese butyrate were given: on Nov. 26th 1 c.cm., and on Nov. 29th 1·5 c.cm. Saline dressings were applied to the preputial sore. The patient's general condition appeared to be improved as a result of the aspirations, and it was not considered necessary to confine him to bed. The sore had healed by Dec. 2nd, and aspiration of the right inguinal swelling was not required after that date. The left swelling ultimately grew larger than the right but responded finally to repeated aspirations, which were discontinued after Dec. 19th. From this date the inflammatory masses of both groins were steadily absorbed and by Jan. 19th, 1933, only slight thickening of the inguinal glands and brown staining of the skin over them remained.

This case shows the superficial, transient character of the initial lesion and the rapid and satisfactory response of the disease to conservative measures of treatment. The diagnosis was confirmed by Dr. Marshall Findlay's animal experiments.

PATHOLOGICAL FINDINGS

Pus was inoculated into the groins of three guinea-pigs and one cercopithecus monkey and into the brains of twelve mice on Dec. 3rd.

Two of the guinea-pigs produced swellings in the groin; material from one of these was removed and inoculated into six mice intracerebrally (Dec. 19th); two of these mice died with typical nervous symptoms and histological changes characteristic of the meningo-encephalitis produced by the virus of climatic bubo. The cercopithecus monkey also showed definite glandular swelling in the groin; the bubo was removed on Dec. 13th and inoculated intracerebrally into six mice, three of which died with characteristic nervous symptoms. Of the twelve mice inoculated directly with pus, ten died after incubation periods varying from 7 to 29 days; a second passage was made into the brains of six mice, three of which have also died, and a third passage is now being carried on. Histological examination of the brains of the mice showed evidence of the characteristic meningo-encephalitis, while the buboes from guinea-pigs and monkeys were characterised by a proliferation of plasmacytoid cells and plasma cells and infiltration with polymorphonuclear leucocytes.

DIAGNOSIS

There is no doubt that watch must be kept for these cases of lymphogranuloma inguinale and other conditions due to infections with this ultramicroscopic virus. Attention is drawn to the following points of differential diagnosis:—

1. The incubation period from the infecting coitus to the primary lesion may be from three days to three weeks, generally about two weeks; from coitus to the appearance of bubo may be from ten days to six weeks, generally about three weeks. These intervals are longer than those of the average chancroidal and gonococcal cases.

2. The primary lesion is painless, usually transitory, and heals spontaneously. The intra-urethral lesion is accompanied by an abacterial urethral discharge of thin, milky fluid. *S. pallida,* Ducrey's bacilli, and tubercle bacilli are absent in unmixed infections. The possibility of double infections must never be forgotten. Repeated dark-ground examinations of serum and fluid obtained from lymphatic gland puncture must be made to exclude *S. pallida.*

3. The adenitis may be unilateral or bilateral; it is usually not very tender. Multiple foci of suppuration in the glands may develop the formation of multiple fistulæ. Thin whitish pus like a milky emulsion is obtained by gland puncture or from the fistulæ. The skin over the enlarged glands becomes characteristically purplish in colour. As periadenitis spreads towards the surface the skin becomes adherent. Careful palpation in the iliac fossæ may reveal associated enlargement of the iliac glands.

4. These cases in the early stage must be differentiated from herpes genitalis, which irritates and may be painful. The adenitis accompanying herpes is mild and transitory and suppuration is rare.

5. The Wassermann, Kahn, and other syphilitic serum tests remain persistently negative, unless there is a mixed infection.

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INTESTINAL OBSTRUCTION DUE TO BANDS IN THE ILEOCÆCAL REGION

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THE adhesions and bands met with in the ileocæcal region can be classified according to the pathological (or physiological) conditions which determine their formation. Thus we find them in:—

(1) Cases in which there have been one or more attacks of acute appendicitis.

(2) Cases which have run a chronic course—conveniently labelled chronic appendicitis—in which an exploratory operation reveals an appendix bound down by adhesions, but otherwise appearing normal to the naked eye.

(3) Cases in which the appendix is involved in adhesions resulting from disease of the female pelvic organs.

(4) Cases of tuberculous disease with caseous or calcified mesenteric glands. Here one often encounters, in addition, an appendix which is somewhat elongated and kinked, and bound down by adhesions. It is often difficult to determine the sequence of the pathological changes: whether chronic inflammation of the appendix has affected the adjacent lymphatic glands so as to predispose them to tuberculous infection (analogous to the relation between chronically infected tonsils and tuberculous cervical adenitis); or whether a healthy appendix has been involved in adhesions resulting from primary tuberculous disease of the glands in its vicinity.

(5) Cases—usually, but not invariably, associated with visceral ptosis—with so-called physiological bands.

The first four classes of case are liable to become complicated by acute intestinal obstruction; but it is doubtful whether this can ever occur solely as a result of physiological bands.

FOUR CASES OF BAND OBSTRUCTION

In the four following cases, intestinal obstruction by bands occurred as a result of disease in the ileocæcal region.

CASE 1.—Miss A., aged 29, was admitted to hospital suffering from acute intestinal obstruction.

Previous history.—Seven years earlier she had been operated upon for acute appendicitis. No notes of this operation could be obtained, but the patient stated that a drainage-tube had been employed, and that the wound discharged freely for some days. She had been led to believe that the appendix had been removed. Since the operation she had had repeated attacks of colic, associated with nausea, but rarely with vomiting; during the last three years she had been very constipated, and experienced a constant sense of abdominal discomfort in the intervals between more acute attacks.

The present illness started three days before admission, with severe generalised abdominal pain, at first colicky, but later becoming constant in character. Vomiting had occurred at frequent intervals, and the bowels had not acted. On admission the tongue was dry and coated, the breath offensive. Temp. 101° F., pulse 120. The abdomen was much distended, universally tender, and peristalsis was visible. There was an old operation scar, 3½ in. long, below the umbilicus, and 1 in. to the right of the middle line. An enema administered shortly after admission was returned clear, though a small amount of flatus was passed. An immediate laparotomy was performed.

Operation.—Under open ether anæsthesia the abdomen was opened through a left paramedian incision, well clear of the old scar, where interference by adhesions was to be anticipated. Distended, boggy, and inflamed coils of small intestine, coated with lymph, at once presented through the wound. After careful packing-off with hot swabs the cæcum was sought. The greater omentum was adherent to the back of the old scar along its whole length, and when freed the cæcum could be brought into view. The cæcum was neither distended nor bound by adhesions. The stump of an appendix about ¾ in. long, greatly thickened in all its coats, but not adherent, was discovered in the ileocæcal position. The cause of the obstruction was then looked for, and a thick cord-like band was encountered. It was attached in front to the abdominal wall immediately above the symphysis pubis, and extended upwards and backwards across the abdomen to end at the root of the mesentery where it crosses the duodenum. Upon this band several coils of small intestine had become impaled and obstructed. The band was divided at its extremities and removed. The appendix stump was excised and the abdomen closed.

The patient made an uninterrupted recovery.

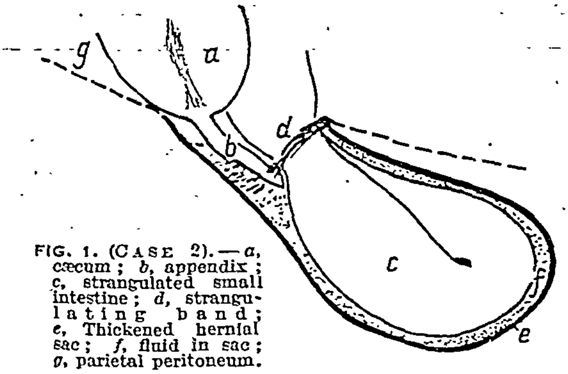

FIG. 1. (CASE 2).—*a*, cæcum; *b*, appendix; *c*, strangulated small intestine; *d*, strangulating band; *e*, Thickened hernial sac; *f*, fluid in sac; *g*, parietal peritoneum.

CASE 2.—B. C., a collier aged 60, was sent to hospital suffering from a strangulated inguinal hernia.

History.—He had had a right inguinal hernia for many years; it had always been reducible, easily controlled with a truss, and had never previously caused much trouble. Thirty hours before he was seized with sudden severe pain in the right groin and lower half of the abdomen, and had vomited repeatedly since. He walked unaided into the hospital ward.

On examination he was found to be a well-preserved man for his years. Temp. 97° F., pulse-rate 88. There was an elongated swelling along the whole length of the inguinal canal, exquisitely tender and without impulse on coughing. The margins of the external ring could readily be palpated; the tip of the little finger could be inserted within the ring, when the swelling could be felt extending as far as the ring but not caught in it.

Operation.—Under open ether anæsthesia the usual incision for an inguinal hernia was made and the canal opened along its whole length. A tense greatly thickened hernial sac was exposed and freed from its coverings. The sac was opened and about 2 oz. of thick greenish-brown offensive fluid escaped. Within the sac there was a strangulated loop of small intestine about 6 in. in length. The strangulation was caused by a band which crossed the sac just distal to its neck. The band was divided, the liberated intestine drawn further out of the abdomen and examined. It was swollen, deeply discoloured, and showed several patches of ulceration and gangrene. The affected loop was resected, and the continuity of the gut restored by an end-to-end anastomosis. The sac was now examined more closely, and the appendix was found to be lying within the neck of the sac and bound to it by adhesions. The band which had caused the strangulation was attached at one end to the tip of the appendix. The appendix was freed and removed, and apart from the adhesions showed little departure from the normal. The cæcum and anastomosed small intestine were returned into the abdomen without difficulty. The sac was excised and the wide neck closed with a continuous suture. The inguinal canal was then reconstructed after the method of Bassini.

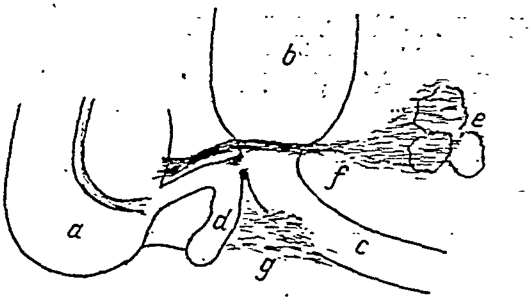

FIG. 2 (CASE 4).—*a*, cæcum; *b*, distended small intestine; *c*, collapsed small intestine; *d*, appendix; *e*, mass of calcified glands; *f*, strangulating bands; *g*, adhesions.

The wound healed by first intention and the patient made a good recovery. On the sixteenth day after operation the left leg became swollen. Four days' rest and elevation of the limb caused the swelling to subside, but it showed some tendency to recur when the patient was allowed up.

CASE 3.—Mrs. D., aged 32, was admitted to hospital for severe abdominal pain of 12 hours' duration. There was no history of any previous abdominal trouble. The pain had developed suddenly and was at first cramp-like and confined to the epigastrium, but later radiated over the whole abdomen. She had vomited twice before coming into hospital and once shortly after admission.

On examination: Temperature and pulse were normal. The tongue was coated. Examination of the abdomen revealed well-marked tenderness over the right iliac region. There was no muscular rigidity, nor could any other physical signs be elicited. An enema administered was returned clear. Early acute appendicitis was suspected and the patient was observed for a few hours. The pain continued to be severe without becoming localised and the vomiting recurred. Laparotomy was therefore performed.

Operation.—The abdomen was opened through a right paramedian subumbilical incision. The cæcum was distended and very mobile. In the mesentery, close to the ileocæcal angle, there were three isolated caseous and calcified gland masses. The largest of these was about the size of a walnut. The mesentery was unusually long. There were numerous thin adhesions binding the appendix to the cæcum. The appendix itself appeared to be otherwise normal. A band, attached below to the mesentery and one of the gland masses, stretched upwards and outwards to the abdominal wall, crossing and compressing the ascending colon. The constricting band was divided; the appendix was freed and removed, and the diseased gland masses excised. Other abdominal organs were explored and found to be normal.

The patient made an uninterrupted recovery.

CASE 4.—E. F., aged 37, was admitted to hospital with an acute intestinal obstruction.

History.—During the previous two years the patient had been troubled with attacks of acute abdominal pain associated with vomiting. As a result of these he had been kept off work for several weeks at a time. Two days before admission he was seized with severe pain around the umbilicus which quickly spread over the whole abdomen. The pain subsided after a few hours, but recurred in wave-like exacerbations. There was repeated vomiting. Large doses of castor oil had been self-administered, but the bowels had not acted, and an enema had failed to produce any result.

On admission the pulse-rate was found to be 68, temp. 99° F.; tongue dry and coated. The abdomen was much distended; central peristalsis was visible; loud borborygmi were heard. There was diffuse tenderness over the abdomen, most marked over the right iliac region, where definite muscular rigidity was found.

Operation.—Under ether anæsthesia the abdomen was opened through a right paramedian incision. Numerous dense adhesions were at once encountered between coils of small intestine and the parietal peritoneum. Some loops of small intestine were greatly distended, while others were collapsed. After freeing some of the adhesions, the cause of the obstruction was traced and found to be a band extending from the cæcum and base of the appendix to a mass of calcified glands at the root of the mesentery. The appendix was then found to be bent acutely upon itself. The knuckle of the bend was adherent to and had perforated the small intestine immediately below the line at which *it had been obstructed. The appendix was separated and* freed, leaving an opening in the small intestine about the size of a threepenny piece at the point where the ulceration had occurred. The opening was closed by suturing it transversely to the axis of the gut; the constricting band was divided; the appendix was removed. The abdomen was closed without drainage.

There was severe post-operative ileus, and vomiting on the second day after operation. The vomitus was copious and became almost fæculent in character. After the stomach had been thoroughly washed out the vomiting at once subsided. The patient then made an uninterrupted recovery.

These four cases were encountered in a series of 153 acute abdominal emergencies (including 23 cases of acute intestinal obstruction) on which I operated.

CLINICAL AND LABORATORY NOTES

HYSTERECTOMY IN MENOPAUSAL INSANITY

BY D. N. PARFITT, M.D. LOND., B.Sc. WALES, D.P.M.

SENIOR ASSISTANT MEDICAL OFFICER, WARWICK COUNTY MENTAL HOSPITAL

THE excellent effect described by Moorhead and FitzGibbon [1] [2] of total hysterectomy on a severe case of menopausal insanity, and the fact that with modern technique hysterectomy has a very low mortality,[3] prompt this note on the results of this operation in 17 cases admitted to the Warwick County Mental Hospital during the five years 1928 to 1932 inclusive. Of these patients 7 were operated on after admission and 10 before, while at least 11 of the total number could be described as menopausal insanities. Total hysterectomy was performed in 10 patients and the subtotal operation in the remaining 7, but, as the Tables show, no appreciable difference in the effect on the mental state was observed between the two operations. The results of operation on the 7 certified patients are shown in Table I., the surgical result being highly satisfactory in each case and physical improvement the general rule.

The three recoveries were expected on clinical grounds, hysterectomy apart. The results in the

TABLE I.—RESULTS OF HYSTERECTOMY ON SEVEN CERTIFIED PATIENTS

Age.	Type of psychosis.	Physical complaint.	Operation.	Time performed after admission (months).	Duration in months.	Result.
54	Acute depression.	Fibroids and seven years "floodings."	Subtotal.	4	8	Recovery.
52	Confusional insanity; progressive dementia.	Fibroids.	,,	14	14	Died; cardiac failure in one week; local healing good.
66	Agit. melancholia and prog. dementia.	,,	,,	8	17	Still certified; progressive dementia.
49	Acute depression.	Fibroids, "floodings," and cervical discharge.	Total.	1	5	Recovery.
40	Agit. melancholia.	Fibroids.	Subtotal.	5	20	Died uræmia; no mental change.
38	Non-systematised; delusional.	Fibroids, cervical discharge, and menorrhagia.	Total.	6	10	Discharged to friends; no mental change.
51	Confusional.	Fibroids.	,,	2	9	Recovery.*

* Readmitted three years later and died in two months from lobar pneumonia.

TABLE II.—RESULTS IN TEN PATIENTS WITH PREVIOUS HYSTERECTOMY

Age.	Period before admission at which operation was performed.	Operation.	Type of psychosis.	Duration.	Result.
50	3 months.	Subtotal.	Non-systematised; delusional.	3 years.	Discharged to friends; no mental change.
51	4 ,,	Total.	Recurrent mania.	7 months.	Recovery, as in three previous attacks.
53	10 ,,	,,	Agit. melancholia.	1 month.	Died; cardiac failure and exhaustion.
53	12 ,,	,,	,, ,,	4 years.	Still certified; progressive dementia.
45	18 ,,	,,	Recurrent melancholia.	1 year.	Still certified; no mental change.
60	2 years.	Subtotal.	Alcoholic; confusional.	1 ,,	Died; cirrhosis of liver.
57	4 ,,	Total.	Confusional.	18 months.	Recovery.
59	24 ,,	,,	Alcoholic; confusional.	4 ,,	,,
43	Not ascertained.	,,	Agit. melancholia.	2 years.	Discharged to friends; no mental change.
65		Subtotal.	Senile dementia.	2½ ,,	Died; senile decay.

10 further patients who were found to have had hysterectomy performed previous to admission, usually for fibroids and hæmorrhage but in one case for carcinoma, are shown in Table II., together with the time before admission at which operation was performed. Hysterectomy was considered the immediate cause of the attack in the first two patients, for mental symptoms dated from the operation.

These results support the opinion of Strachan and Skottowe,[4] that in psychotic patients the operation of hysterectomy should only be undertaken for a demonstrable pelvic lesion. In no case in this small series could mental improvement be justifiably related to hysterectomy.

I wish to thank Dr. A. T. W. Forrester, medical superintendent of the Warwick County Mental Hospital, and Mr. G. G. Alderson, the visiting surgeon to the hospital, for permission to publish this note.

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1. Moorhead, T. G.: Brit. Med. Jour., 1932, i., 923.
2. FitzGibbon, G.: Ibid., 1932, i., 924.
3. Shaw, W.: Ibid., 1933, i., 907.
4. Strachan, G. I., and Skottowe, I.: THE LANCET, 1933, i., 1060.

TWO CASES OF INFLUENZAL PNEUMONIA TREATED BY INJECTION OF CONVALESCENT SERUM

BY RONALD HARE, M.B. LOND.*

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IN view of the demonstration by Smith, Laidlaw, and Andrewes[1] that the ætiological agent of influenza is filtrable and can infect ferrets, and that the serum of convalescents can protect the animals against infection, two cases of influenzal pneumonia treated by the injection of convalescent serum during the epidemic last winter are of some interest. The serum appeared to have a specific effect in that the temperature began at once to fall, along with considerable amelioration in the symptoms. Similar results were obtained by McIntosh[2] in 1918, but for some reason convalescent serum has not been at all widely used in recent epidemics. The details of the cases were as follows.

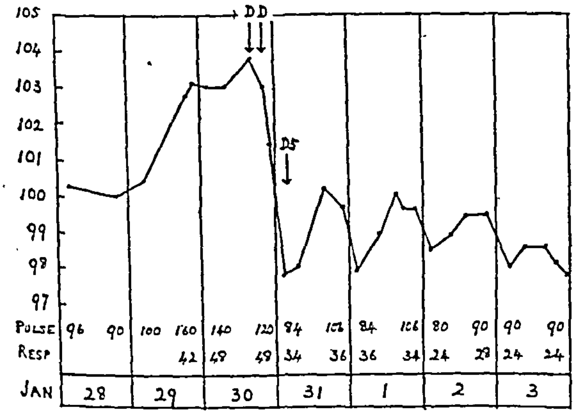

FIG. 1 (Case 1).—Temperature chart. 10 c.cm. serum D injected at D; 5 c.cm. injected at D 5.

CASE 1.—Mrs. A. In the isolation block, Queen Charlotte's Hospital, under the care of Mr. C. Lane-Roberts. Pregnant (full term). Aged 27. Well until evening of Jan. 26th when fever began. Jan. 28th: delivery (uncomplicated); temp. 100·2° F.; rhonchi over both sides of chest. Jan. 29th: much worse; cyanosed, dyspnœic; patchy dullness over both lungs. Jan. 20th: condition grave, extreme cyanosis, stertorous respiration. At 4 P.M. temp. 103·8°, resp. 46, pulse-rate 140. 80 c.cm. of blood removed by venesection and 10 c.cm. serum D given intravenously. At 8 P.M. condition was slightly improved and another 10 c.cm. serum D was given. Condition began at once to improve and patient slept well all night. Jan. 31st: 10 A.M., temp. 98° F., resp. 32, pulse, 84; dyspnœa and cyanosis had both gone; cough loose with mucopurulent sputum. A further 5 c.cm. of serum D given intravenously. Despite a tendency to evening temperatures of 100° F. the patient made an uninterrupted recovery.

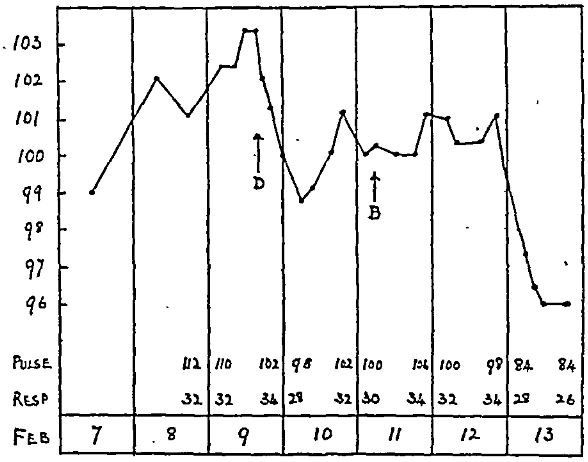

FIG. 2 (Case 2).—10 c.cm. of serum D injected at D; and 10 c.cm. serum B injected at B.

CASE 2.—Mrs. B. Under the care of Dr. Alan Massey, of Hanwell. Aged 36. Pregnant (5 months). Feb. 1st: general malaise. Feb. 2nd: cough, no lung signs. Feb. 7th: better. Feb. 8th: became much worse; severe cough with mucous râles and bronchial breathing over both lungs; dyspnœic and sleepless. Feb. 9th: condition worse; marked dyspnœa and pain over left side of chest. At 5 P.M. temp. 103·4° F., resp. 34, pulse 111. 10 c.cm. serum D given intravenously. At 9 P.M. condition had improved considerably. Dyspnœa had gone and expectoration free. Temp. 99° F. Slept well all night. Feb. 10th: general condition much improved. Feb. 11th: 10 c.cm. serum B given intravenously; slept well. Feb. 13th: temp. subnormal. Recovery uninterrupted.

The serum came from two donors whose history was as follows:—

(1) D. Had had sore-throat from Jan 9th to 13th, with a maximum temperature of 100·8° F., with spasmodic cough and pain along the bones. 100 c.cm. blood removed on Jan. 30th.

(2) B. Had had similar symptoms to the above from Jan. 29th to Feb. 5th. 200 c.cm. blood removed on Feb. 9th.

Specimens of sputum from both cases were obtained before serum treatment was begun. On being plated on horse blood-agar plates and incubated aerobically, they yielded very mixed cultures of non-hæmolytic streptococci and diphtheroids. No pneumococci or Pfeiffer's bacilli were isolated.

Both cases reacted in very similar and very dramatic fashion. The temperature began at once to fall, reaching normal within 12 hours. The pulse-rates fell coincidently. Dyspnœa and pain both disappeared

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* Working with a grant from the Medical Research Council.

[1] Smith, W., Andrewes, C. C., and Laidlaw, P. P.: THE LANCET, July 8th, 1933, p. 66.

[2] McIntosh, J.: Studies in the Ætiology of Epidemic Influenza, Med. Res. Coun., Spec. Rep. Series 1922, No. 63.

and did not return. In Case 1 the severe cyanosis also disappeared. Expectoration became easier and the secretion more copious. But most remarkable of all was the improvement in the general condition, so that both patients were able to sleep the whole of the night following the initial injection of serum. The physical signs over the lungs indicated that the pneumonic condition underwent rapid resolution after the initial fall of temperature. There can be little doubt that in Case 1 the patient was moribund at the time treatment was begun, and that the illness in Case 2 was shortened.

No further cases were available for study, so that the correct dosage of serum or the best time to bleed the donors have not been investigated. It is probable that the doses employed were too small. This certainly applies to Case 2. In the absence of any method of making an antiserum artificially it seems that the employment of convalescent serum in influenzal pneumonia merits further trial.

REVIEWS AND NOTICES OF BOOKS

The Digestive Tract

A Radiological Study of its Anatomy, Physiology, and Pathology. By ALFRED E. BARCLAY, O.B.E., M.D., D.M.R.E., Lecturer in Radiology, University of Cambridge. London: Cambridge University Press. 1933. Pp. 396. 36*s*.

Dr. Barclay modestly describes this work as "the result of many years of groping," and it has a human element that makes it a pleasure to read. The book as a whole falls into three main divisions. The first part provides a careful study of radiological technique, using the word in its fullest sense. In this section are considered radiological risks and their avoidance, the routine and technique of an alimentary X ray, and the proper methods to be followed in the screening and palpation of the abdomen together with some shrewd comments on the proper way of drafting the final report. What Dr. Barclay calls precepts for examinations are summed up in a series of "do's" and "don'ts," which might with profit be learned by heart by every aspiring radiologist. The necessity for following a well-tested routine in every case is rightly stressed. "Don't be 'jockeyed' out of your routine by anybody," says Dr. Barclay, and again, "Routine may cause apparent delay but unless there is some urgent reason to the contrary the radiologist is well advised to insist that his routine shall take its course." Having arranged his tools and described the most efficient way to use them, he proceeds to discuss the radiographic examination of the alimentary tract. Diagnosis by this means was handicapped in the early days of radiology because so little was known of the range of variation in the appearances presented by healthy organs. Partly, no doubt, in remembrance of this difficulty nearly a third of the present volume is devoted to the anatomy and physiology of the alimentary canal as seen by the radiologist, and this section constitutes the most complete and authoritative survey of this subject we have seen. Dr. Barclay dislikes the word "normal" in this connexion; "there is no such thing as 'normal'; an alimentary tract may approximate to the average but there is no fixed standard of normality." The anatomy of the stomach and the factors influencing its form and position are studied in detail and so the reader is brought to a short but very interesting chapter on the effects of posture and respiration on other abdominal viscera. The consideration of the mobility and adaptability of the viscera follows as a natural sequence. Dr. Barclay's conception of living anatomy is one of mobility, of complete absence of fixed points, which, as he shows, would necessarily interfere with nature's mechanism. He emphasises that normal abdominal viscera have neither fixed shapes nor fixed positions, and that moreover profound change may be caused not only by mechanical forces but also by mental influences. His hope that his work will do something to prick the last bubble of "fixation" and similar operations may well be realised. The movement of the food from mouth to anus is passed in review in a concise manner and the mechanism of "mass" movements and its bearing on constipation carefully noted.

Having thus defined the condition of the digestive tract in health, Dr. Barclay proceeds to its appearance as presented to the radiologist in disease. Each pathological condition is carefully described, discussed, and adequately illustrated. In passing it may be noted that the many beautifully produced illustrations drawn from various sources, with which the book abounds, have obviously been carefully selected. They constitute a valuable atlas of the radiological appearance of the alimentary canal in health and disease. This section bristles with useful tips and sound conclusions drawn from wide experience. A small criticism may be made on the subject of gastritis and its diagnosis from the X ray appearance of the mucosal striæ. We believe that radiologists are getting more accurate results from what Dr. Barclay aptly calls "this new and precise method of investigation" than he is prepared to admit. Dr. L. A. Rowden has collaborated in the chapter on the gall-bladder and the association is a happy one. Here we suggest that cholecystography is a better name than the "dye test" or the Graham test.

A series of appendices form the third and concluding section of the work. One of these deals in great detail with the organisation and equipment of an X ray department and should prove invaluable to any one building a new or remodelling an old radiological unit. There are also a good bibliography and indices.

The book is thoughtful and practical, at times philosophic, always instructive, and is admirably produced.

Problems in the Education of Visually Handicapped Children

By RALPH VICKERS MERRY, Consultant in Child Guidance, Dayton, Ohio. Harvard University Press. 1933. Pp. 243. 13*s*.

IN this book a blind child is defined as one whose vision, after correction, is insufficient to permit him to be educated by visual methods; a partially seeing child is one whose corrected vision is insufficient to permit him to be educated in the ordinary grades, but who can profit by the methods and apparatus used in sight-saving classes. There are said to be about 14,400 blind children under 20 in the United States of America, and it is estimated that there are 50,000 partially seeing children who should be in sight-saving classes, of whom less than 5000 are actually enrolled. So far as the blind are concerned the recognised essential in their education is the teaching of the Braille type. It is noteworthy that during the greater part of the nineteenth century there was no general agreement as to the best form of embossed type, and it was not until 1920 that the "type war" was finally set at rest in America by the adoption of a universal Braille system. At present there are 54 State institutions for the blind in the United States and seven private schools receiving State help, but ten States still have no compulsory education laws affecting blind children. There are also a few public schools where the experiment has been tried of having special classes in certain subjects such as reading, writing, and arithmetic for blind pupils, the rest of their work being carried on in the ordinary class-rooms. The relative advantages of these two plans is discussed in this book, the conclusion being that there is room for both.

The sight-saving classes for weak-sighted children date from 1913, and are modelled on the myope schools of the London County Council. In January, 1930, there were 350 such classes with an enrolment of 4829 pupils in 93 cities and 2 counties, but in America as in England, many of these children are still being educated in residential blind schools. One of the most difficult problems is how to educate a child with sight so defective as to qualify him for a sight-saving class where no such class is available. Another is how to deal with myopes whose corrected sight is good but who run the risk of its deteriorating in later life; the same applies to those with restricted fields, as in some cases of optic atrophy and some of retinitis pigmentosa. Should such children be taught with the blind? When the number of weak-sighted children in a blind school is considerable the obvious solution is to establish special classes adapted to their needs. Although sight-saving classes are by no means beyond criticism, Mr. Merry holds that they are generally more progressive than the residential institutes for the blind.

The book goes on to discuss pre-school and kindergarten training for the blind, the relative advantages of education in residential schools and in day-school classes, the need of the sight-saving classes, the health problems peculiar to these children, and the importance of simple physical training, and especially the correction of the postural defects, common in blind children, through systematic treatment and exercise. How far such exercises should be modified in the case of high myopes is a question that is not discussed. Later chapters deal with the development of intelligence tests and the problems of the mentally subnormal blind child, "blindisms" or tricks apt to be associated with blindness, sex problems, and speech disorders. The need for organised guidance on individual lines is stressed, and the special qualifications needed by teachers of the blind and of the sight-saving class are considered. The annotated bibliography that completes the book demonstrates the amount of attention which is now being devoted to these subjects in America.

Organs of Internal Secretion

Their Diseases and Therapeutic Application. With a chapter on Obesity and its Treatment. Fourth edition. By Ivo Geikie Cobb, M.D., M.R.C.S. London: Baillière, Tindall, and Cox. 1933. Pp. 303. 10s. 6d.

The literature of endocrinology has grown so overwhelming during the last 20 years that few workers can hope to keep abreast of more than one branch of the subject. The busy practitioner is so bewildered at its mass that too often he does no more than glance at the innumerable brochures sent out by manufacturers of glandular products. He should appreciate the provision of unbiased indication of the present state of our knowledge such as is provided in this book now in its fourth edition, which does not enter at all deeply into the experimental evidence on which this knowledge is based. In this edition the work has been thoroughly revised and largely rewritten, and chapters on infantilism and obesity have been added. If the style errs a little on the side of chattiness, many will find it the more readable on that account.

A Short History of Dentistry

By Lilian Lindsay. London: John Bale, Sons and Danielsson. 1933. Pp. 88. 3s. 6d.

Mrs. Lindsay has already established herself as an authority on the history of dentistry, and in this little book she shows that her knowledge of the subject is not less wide than that of Guerini or Weinberger. In 88 pages she has managed to convey an extraordinarily complete survey of the evolution of dentistry. It is a fascinating picture which shows that while from early times there had been progressive development, it was not until the last century that striking advances were made which placed dentistry on a secure footing and enlarged its scope to cover, on the one hand, scientific investigations into physiology and pathology, and on the other the practice of an art which has æsthetic as well as hygienic value. The use of fused porcelain for artificial teeth and the discovery of vulcanised rubber as a denture base were perhaps the two most notable changes in dental practice. This brochure should be widely read, for few members of the medical or dental professions know much about the evolution of dentistry.

The Injured Workman

By G. F. Walker, M.D., M.R.C.P., with the collaboration of J. Harvey Robson, Barrister-at-Law, R. E. Jowett, M.D., Ch.B., D.L.O., Stanley Ritson, M.B., M.S., B.Sc., F.R.C.S., and John Foster, M.A., M.B., F.R.C.S., D.O.M.S.; and with a foreword by W. H. Maxwell Telling, M.D., B.S., F.R.C.P. Bristol: John Wright and Sons, Ltd. Pp. 190. 1933. 6s.

This book is apparently intended both for the legal and medical practitioner. The first chapter on law is clearly expressed and will appeal especially to the doctor. Perhaps greater emphasis should have been given to the fact that compensation under the Workmen's Compensation Acts is only given for actual loss of earning capacity: this is a fact that is frequently misunderstood by the practitioner, and in fact seems to have been misunderstood by one of the contributors to this volume, who says on page 118: "compensation is awarded . . . secondarily for deformity and pain." It cannot be too clearly emphasised that no compensation is awarded for pain but only for earning incapacity, which may or may not result from the injury which causes pain. On general medicine and surgery there is much in this book that is likely to help the doctor to determine whether a patient is entitled to compensation. The balance between injuries to various regions of the body is not however very well maintained, for over a third of the medical part of the book is devoted entirely to injuries of the eye. This section is admirably compiled by a writer who has obviously had considerable experience of industrial injuries to the eye, but it must be borne in mind that only a very small proportion of the total number of accidents that occur affect the eye. In a series of 7500 consecutive cases of injury for which compensation was paid by a large insurance company, less than 1 per cent. of these injuries was to the eye, whereas more than half of the injuries were to the hand, a subject that is not even mentioned in this volume. This is a grave omission. The book is clearly written and admirably printed; it has a short bibliography and a complete index.

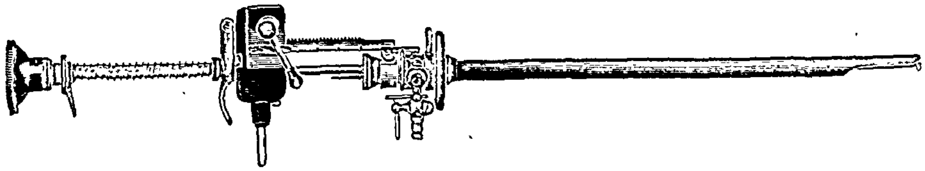
NEW INVENTIONS

ADDITIONS TO THE McCARTHY TRANSURETHRAL ELECTROTOME

WHENEVER the method of perurethral resection is used in the treatment of certain malformations of the prostate, it is essential that the operation be performed with the greatest possible accuracy, for the loop activated by diathermic current cuts the tissues with a speed greater than any scalpel.

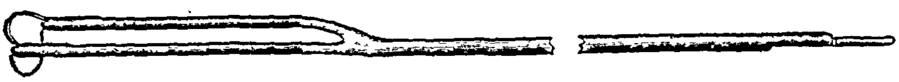
The instrument now described is of the type introduced to surgery by J. F. McCarthy, but some important additions have been made to it with the object of enabling it to be used with more facility and greater precision. In the first place, it is constructed to allow of the telescope being moved within the sheath, independently of it and also independently of the cutting loop (Fig. 1). The principle of transurethral resection of the prostate by McCarthy's method demands that this loop is placed just over the far side of that portion of the prostatic crest which it is desired to remove. When so placed, the loop itself is, of course, hidden behind the obstruction; when there is any considerable hæmorrhage it is difficult to ensure that this manœuvre has been carried out with the accuracy which is essential to the success of each cut. In this modified electrotome the most important advantage gained by the independent mobility of the telescope is to facilitate this procedure; this is effected in the following manner.

FIG. 1



When the loop has been placed as nearly as possible in the position to cut (Fig. 2), then the telescope is advanced so that the loop and the tissues in contact with it, which were previously seen in the distance, are now brought into very close view, so that the relative positions can be inspected and adjusted with the greatest precision (Fig. 3). Immediately before making a cut the telescope is released and automatically clears itself so that no electric short circuit is possible. On conclusion of cut the loop is in position indicated in Fig. 4.

FIG. 5



The independently moving telescope has a second use. Before beginning the treatment of prostatic enlargement it is clearly desirable to have some record of the size of the gland. One important measurement is that of the length of the prostatic urethra, from the verumontanum to the crest of its intravesical projection. To measure this the sheath is placed so that the verumontanum is just visible; in this position it is held steady and the telescope is now advanced until the bladder entrance is reached, each centimetre of movement being recorded by a notch.

When the measurement has been recorded, a further use may be made of it if desired. For the instrument can be set to make a definite length of cut on each occasion, the setting chosen being obviously always less than the total length of the prostate above the verumontanum. This is, of course, only one method of ensuring that each cut which is made is never of dangerous length.

Mr. Schranz, of the Genito-Urinary Company of London, who has so skilfully carried out my ideas in this respect, has also made another very valuable improvement in the design of the loop itself. He has added above it a fine strip of copper, thus turning the half-circle loop into an ovoid. As in the McCarthy instrument it is only the half-circle loop which cuts, but the copper strip, which lies against the roof of the instrument, ensures that the shape of the loop itself cannot become distorted (Fig. 5), thus making it practicable to resect pieces of tissue relatively larger than has hitherto been possible. This is an important achievement, for I believe that in all perurethral operations large instruments should be avoided, and that they should be of as small a calibre as is consistent with efficiency. The one here described is of 26 Charrière scale. The maximum length of cut is 3·5 cm. and the minimum is 0·75 cm. Other variations in size and length of cut can be constructed.

FIG. 2

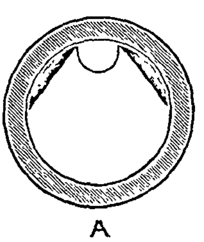


FIG. 3

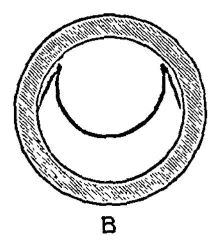
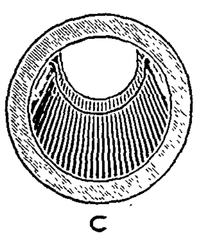


FIG. 4



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THE LANCET

LONDON: SATURDAY, AUGUST 5, 1933

THE FINANCIAL SITUATION OF THE LONDON VOLUNTARY HOSPITALS[1]

THE annual statistical review for 1932, which is published this week by King Edward's Hospital Fund for London, provides reassuring information as to the financial support which the hospitals have been receiving. The year was one of marked financial depression, a depression made all the harder to bear because sporadic promises of better things seemed seldom or never to materialise. None the less, during 1932 the voluntary gifts to the hospitals, other than legacies, increased when a drop might well have been anticipated, and further there was a gratifying addition to the amount received from the general body of subscribers. The situation was also assisted by an increase in the grant from the King's Fund in aid of maintenance. The total voluntary gifts in 1932 amounted to £2,173,000, receipts for building endowment being included, while the money received from patients showed an advance on all previous figures, reaching a total of £1,463,000. The total income of the 145 hospitals covered by the review amounted to £3,826,000, being, it is true, less by £3000 of the total for the previous year, but in 1931 more money was received from legacies.

The vast figures prove alike the far-reaching scope of the work done by the voluntary hospitals and the appeal which they make to the public mind. They show that while the work in London progresses, receipts both of voluntary gifts and of patients' payments are keeping pace with the increased maintenance expenditure. Now the increase of maintenance expenditure per patient forms a practical proof that the quality of the treatment has been improving, and the conclusion drawn in the review, based on the figures, may be quoted for its suggestiveness. "The advances in therapeutic knowledge and skill," the words run, "have inevitably led to demands from other sections of the community that they should not be debarred from the benefits of the progress, and the voluntary hospitals, in adapting themselves to the changing conditions brought about by the ever-developing coördination of social life in this age, have met the necessities of the case by enlarging their field of service, which now includes not only the indigent sick, but also a large body of wage-earners who make substantial contributions either direct or through contributory schemes, and also persons of moderate means who are admitted to the private pay-beds." This means that the status and significance of the voluntary hospitals are better appreciated than ever; in a changing society they have adapted themselves to the changes, and the modern fusion of classes, accompanied by a basic redistribution of wealth and poverty, has led to a growing spirit of public responsibility—more persons are benefited as more feel their indebtedness. Further, notwithstanding the increasing volume of hospital work, economies all round have been effected; the total running expenditure has been reduced and the aggregate of surplus income over expenditure has mounted. An interesting table in the review summarises the fortunes of individual hospitals, showing that some of them have been placed in more difficult positions than others during the past five years, while the surpluses and deficits in 1932 are capriciously distributed among them. But as far as London is concerned it would seem that the economic crisis has not had the sad effect on hospital finances that was widely anticipated. Indeed, increased prosperity is looked forward to on reasonable grounds.

There is food for thought in all this, and many people are thinking, and thinking seriously. If the satisfactory maintenance of the voluntary hospitals is achieved in recognition of their work as centres of progress and education, as the resorts of the sick and injured where forms of treatment can be supplied which are outside the range of anything save institutional therapy, then the services of the voluntary hospitals cannot be exaggerated. But should the economic position of the voluntary hospitals come to derive its strength from catering to the public in situations where the personal and domestic care supplied by the practitioner could meet, and could better meet, the wants of the suffering, an anomalous issue will occur, which will benefit neither medicine nor the public. These things should remain in all persons' minds. The great educational institutions must not become training grounds for recruits whose proper opportunities for services are being unduly diminished by the institutions, nor must the public lose the advantages derived from the intimate associations of the patient with his personal doctor. From these associations there have been and there will always be derived the most pertinent advantages which medicine can possess for its progress and extension. Those who control the policies of the hospitals—whether voluntary or municipal—cannot at this time be unaware of the difficulties to which allusion is made. Those difficulties seem to show a tendency to increase, which is not so pleasant to contemplate as the rising prosperity of hospital finance.

EUGENICS IN GERMANY

CERTAIN eugenic proposals put forward in Germany were discussed in our issue of June 10th by the secretary of the Eugenics Society, who pointed out how wide was the gulf between them and the measures advocated by eugenists in England. At that time it seemed possible that they were no more than the suggestions of a more or less irresponsible extremist; now, however, any doubts of the kind have been resolved. The actual bill which is sponsored by the German Government is available;[1] it provides for compulsory sterilisation and leaves room in its application for the gravest abuse of human rights.

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[1] Statistical Review of the Work and Finance of the London Voluntary Hospitals for the Year 1932. Offices of the Fund, 10, Old Jewry, London, E.C. 1s.

It would be surprising if, in the present state of Germany, learned support were lacking for such a measure. In the union between politics and science the latter has become the pliant partner, and in the writings of several professors, collected in a special eugenics number of the *Deutsche medizinische Wochenschrift* (July 14th), the new relationship is celebrated with fervid candour. Many of the contributors are men of high reputation; all are strong in the faith for those ends and measures which Galton advocated and which English eugenists pursue. But the expression of these aims is far too often associated with gross overstatement of our present knowledge of heredity, a disregard for the individual human being, and a willingness to act upon racial prejudice. The divergencies from what might be called laudable eugenics are of significance. Contraception in its modern usage is reprehended on grounds of general and national morality. Women must recognise that they have no place in competition with men, that their only true purpose in life is to bear children for the State; the disparity in birth-rate between Germany and its Slav neighbours demands this, if Germany is to survive and the German is to carry out his cultural mission. There must be true Germans, close to the Nordic ideal, to colonise the border countries which may be won by Germany. This Nordic ideal must not be narrowly regarded as a matter only of physical qualities: the character and capacity which make the Germans superior to other national groups are sometimes to be found conjoined with non-Nordic somatic attributes, but a study of the family origins of such Germans will prevent any confusion with the foreign, inferior races. The members of such races, especially Jews, are to be excluded from all but servile occupations, since they would otherwise have opportunities, as doctors, teachers, scientists, and leaders, to contaminate the German people; infiltration by inferior peoples through marriage is to be absolutely forbidden. The former liberal or Marxist concern for the individual must give way to a regard for the State, the family, posterity; such considerations justify compulsory sterilisation for the mentally defective, the manic-depressives and the schizophrenics, the chronic alcoholics, the criminals. The latter may be offered the alternatives of incarceration or sterilisation. Whether sterilisation should be made compulsory was still a matter for discussion, we believe, when these articles were composed; some of the writers deprecate overt compulsion but support an indirect compulsion by withholding from recusants all public assistance. Emphasis is laid on the necessity for a wholehearted eugenic propaganda, penetrating all instruction, and the three rules for this are set forth plainly. (1) The appeal must be to a few simple, primitive lines of thought. (2) The basic ideas propagated must be represented as obvious, unshakable, proved to the hilt. (3) These few basic ideas, always in exactly the same form, must be continually and interminably hammered into the consciousness of the masses. Physicians and savants are adjured to overcome their feelings that such arts are unworthy of them, and the articles themselves, with their slogans, assumptions, and appeals, show that such self-control is possible.

It is not easy to distinguish between the sounder eugenic aspects of Nazi policy and the more odious forms in which the social spirit of Germany is now manifesting itself, by persecution and chauvinism. The policy is highly integrated. Its espousal by these German physicians and geneticists may in part be attributed to their explicit preference for a form of society in which intelligence and humanity are less respected than ruthless devotion to the State. Some of the provisions of the new German law, when put into action, will no doubt result in valuable genetic data and some social benefit. But these will not necessarily outweigh the harm that will be done. It is difficult to excuse the geneticist who can declare that "we have a perfectly assured basis for all conceivable political measures, dealing with population," or that "with regard to practically all the diseases that interest us, because of their frequency, we know for certain whether they are hereditarily determined or not, and to what extent." Upon these misstatements and exaggerations, and others of older date concerning racial differences, there is being constructed a system of compulsory interference with the liberty to propagate, the total effects of which, though difficult to foresee in detail, can scarcely be other than bad. It is fortunate that eugenists in England have shown more restraint and critical honesty, and that social measures in this country are informed by a juster regard for the individual human beings who make up the State and for whose benefit the State exists.

MEDICINE AND THE DEFENCE SERVICES

IT is well known that since the war the medical departments of the Defence Services have been under great difficulties of personnel, carrying on largely with the assistance of retired officers or of doctors employed on short term contracts. As certain of these could not be employed overseas, the regular officers of the Services have been retained abroad for an unfair proportion of their time, and, despite many efforts to the contrary, have not had good or sufficiently continuous opportunities for adding to their knowledge by post-graduate study. Improvements in the rate of pay have been made more than once of recent years, but their failure to relieve the situation proved that conditions in the Services rather than the pecuniary returns offered insufficient appeal. Accordingly in May, 1931, the Government set up an authoritative Committee under the chairmanship of Sir WARREN FISHER, with the reference to investigate the causes of the shortage of officers and nurses in the medical and dental branches of the three

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[1] Summarised in the Times, July 27th, p. 11.

Defence Services, and to make recommendations. The medical members of the Committee were Sir ARTHUR GASKELL, medical director-general of the Navy, Sir HAROLD FAWCUS, director-general A.M.S., Air-Commodore J. C. McINTYRE, director of medical services, R.A.F., Prof. G. E. GASK, and Dr. A. M. H. GRAY. The occurrence of the financial crisis later in 1931 led to suspension of the sittings of the Committee, but not before they had received representations from the British Medical Association regarding the conditions in the three Services, as well as a considerable body of evidence from many medical schools, and from members of the Board of Admiralty and of the Army and Air Councils who were responsible for the respective personnels. Further, all the Government departments concerned furnished written information, so that the Report, as now submitted, has been made under unexceptionable opportunities for eliciting the facts.

From an analysis of the evidence it can be seen that the Committee concluded that the economic opportunities were to some extent a bar to recruiting, but that the belief that professional opportunities would be lacking for the officers had a more deterrent effect. The Committee accordingly considered it of the first importance to correct that impression authoritatively, as far as it was proved to be wrong, while, where it was found to be right, to make recommendations for the removal of professional disabilities. The suggestions made from the medical schools with regard to the professional outlook, regarded in their extreme form, amounted to saying that life in the Services offered small scope, with the implication that no young medical man with pretensions to professional keenness should enter them. As allegations of this character were pressed upon the Committee, they invited two medical members of their body, Prof. GASK and Dr. GRAY, to investigate personally the matter, and the scrutiny of these two authorities extended to all types of posts in the three Services. Taken as a whole their findings refuted the allegations. While allowing that the young graduate in medicine with ambitions to reach the top of the tree might not select for a career one of the Defence Services, they advised that in all three a good field was to be found for specialist work. With the Army, general and tropical medicine, surgery, pathology, and hygiene could all be fully pursued, while the special appointments in the last subject were comparable to the post of M.O.H. in civil life. In the Navy they point in particular to the chances of good ophthalmological work; while regarding the Air Force, where similar attention must be paid to ophthalmology, they point to the need for research in the medicine of aviation. Their general conclusions were that the opportunities offered to the officer in the Defence Services of practising a special subject are good, but hold these opportunities to be "somewhat severely restricted by limitations in the period of career during which they are available and by the intermittency of employment." The Committee accepted these views and conclusions, and add that on the economic side the career in the Services suffered from certain definite and common disadvantages. It was too short; officers retired relatively young from the middle ranks, could not educate their families satisfactorily on their pensions, and they could not easily obtain good civil employment. Promotion was too slow and too few officers could reach the higher ranks. The large amount of overseas service or service afloat and the frequency of moves were also disadvantages. To remedy these things their recommendations are made.

The Report is excellently clear in its message. Starting with the broad conclusion that the career in the Services must be improved materially, both in the opportunities it provides for professional work and in the economic advantages offered, it is found that this dual improvement can only be effected by reorganisation. And, in their view this can be brought about without any increased charge on the Exchequer. It is proposed to reorganise the Services on the basis of a reduced total establishment of officers by the elimination of posts held to provide insufficient professional work. Professional opportunity will be improved in the reorganisation by ensuring that those officers who make these Services their life career will be allowed to specialise, and that the specialists will be enabled to spend a considerable part of their career in practising according to their particular equipment. On the economic side the plans for reorganisation should enable a larger proportion of officers to prolong their official career and reach the higher ranks, and therefore the larger pensions. Thus in the Army the rank of lieutenant-colonel will normally be reached about the age of 42, instead of about 48 as under the present organisation, and that of colonel about 50, instead of about 53. Moreover, a large majority of officers will in future be enabled to reach the rank of colonel, and thus to retire with the larger pension of that rank. While no alterations in the pay scale, except certain limited adjustments, are offered, it is held that the increase in emoluments resulting from the proposals amounts to an average of nearly £150 a year throughout the period of an officer's career between the ages of 35 and 50. The estimate is based on the revised Army career, which it is suggested should be the pattern. As the period between the ages of 35 and 50 is that when the responsibility of parents is the greatest, a substantial inducement to join the Services is thus put forward. The Committee emphasise the duty laid upon the employing departments not to enter more officers with the prospects of life career than is justified by the number of higher posts that will be available, but at the same time they consider that the present higher establishment is unduly restricted. But with the increase which is contemplated in the higher establishment the proportion of senior to junior posts will remain in their opinion too small to allow of all recruits to the Services being entered for a life career. A margin of the non-permanent will be required, and they propose that officers in the first instance should be chosen for short service, from whom a certain proportion can be retained, under increased opportunities for promotion. Thus a normal short service period in all three

Services will continue of five years' duration, on the completion of which a gratuity of £1000 will be paid. The committee are satisfied that the scheme of reorganisation will place a career in the Services on a favourable basis as compared with competing civil employments, while they desire to make it clear that the improvements which their proposals would effect as regards future entrants must be examined by the departments in the interests of existing officers; that is to say, the increased opportunities of promotion must be equitably distributed among them.

ANNOTATIONS

A VALUABLE AMALGAMATION

PROPOSALS for the amalgamation of the Ross Institute and Hospital for Tropical Diseases with the London School of Hygiene and Tropical Medicine have been issued in memorandum form from the Ross Institute by its chairman, Sir Charles Campbell McLeod. The memorandum states succinctly the advantages that will accrue both to the school and the institute under a scheme of joint endeavour. That some such amalgamation would take place was anticipated, for shortly after the death of Sir Ronald Ross, when the Goldsmiths' Company was considering the making of a grant to the institute, the question was raised whether its activities did not overlap with those of the London School of Hygiene and Tropical Medicine. Discussions at once took place between the presiding authorities of both bodies; from the beginning it was made clear that the school, so far from wishing to interfere with the work of the institute, would give to that work its fullest support both for its own sake and as a memorial to Ross. Sir Charles McLeod goes briefly into the origin of both bodies, and includes an eloquent testimonial to the exertions of the late Sir William Simpson, both in India and at home, with the object of elucidating the problems of malaria, as well as to his enthusiastic devotion to Ross. The fame of Ross will be carefully preserved in the forthcoming fusion of work at the London School, and it may be remembered that his name already stands carved on the front of the school among the immortals of tropical medicine and hygiene. Under the new scheme a department within the school will be known by the name of the Ross Institute of Tropical Hygiene, and on all official correspondence of the school the words will appear, "Incorporating the Ross Institute." Two members of the institute will be placed on the court of governors of the school and one on the board of management. For the work of Sir Aldo Castellani the school will provide laboratory accommodation, and he will take with him his laboratory staff at the institute, being appointed to the staff of the school with the title of director; and he will join the staff of the Tropical Hospital of the Seamen's Hospital Society, where the patients of the institute will be received. Sir Malcolm Watson will be appointed director of tropical hygiene at the school, filling the vacancy created by the death of Andrew Balfour. The pathological work now being carried on at the institute will be continued in the pathological department of the Hospital for Tropical Diseases. By the closing down of the hospital beds at Putney and by the ultimate sale of the property, economies will be effected, while the work will go on not only without interruption but with increased vigour derived from a wise fusion.

NERVE BLOCK FOR LABOUR PAINS

ALTHOUGH the greatest desideratum in connexion with the abolition of pain in labour is an anæsthetic which can be easily applied without expert aid, yet any increase of knowledge with regard to the physiology of the pains of confinement is not to be undervalued, even if it appears to contribute little to practical obstetrics. The experimental and clinical investigations carried out by J. G. P. Cleland[1] appear to have established important facts with regard to the routes for the painful impressions due to uterine contraction and to vaginal dilatation. The former seem to emanate from the eleventh and twelfth thoracic roots, the latter can be abolished by caudal block. Acting on the knowledge he had derived from experiment, Cleland used paravertebral block of the eleventh and twelfth thoracic roots in combination with caudal block, and procured painless labour. The block may last as long as eight hours and can safely be repeated. The paravertebral block abolishes the pain of uterine contraction without affecting the tone of the uterus, or the degree, frequency, or duration of contractions for a length of time varying with the type of anæsthetic used. The pain of dilatation of the birth canal was abolished by caudal block with about 20 c.cm. of 1 per cent. novocain or of percaine 1 to 500. The work described seems to have been completely successful in defining the exact nerve centres involved in the pain of uterine contraction, and shows how the hyperæsthesia of the abdominal wall depends on the spreading of sensation under the influence of severe stimulus in the manner first described by Head.

TUBERCLE BACILLI IN STOMACH LAVAGE

THE value of the stomach lavage method of demonstrating tubercle bacilli in children who do not readily bring up sputum is now well recognised. An analysis of the methods used was published some months ago in our columns by Dr. W. R. F. Collis and Dr. C. Fraser Brockington.[2] A comparative test has recently been made by C. Kereszturi, D. Hauptmann, B. Schick, and L. Mishulow[3] to correlate the results of the stomach lavage with the other more frequently used laboratory procedures of sputum, stool, and throat swab examination. The patients were children aged from 8 months to 15 years in the Sea View Hospital, New York, and represented different forms of tuberculosis; some of them showed no abnormality but a positive tuberculin test, others had far advanced bilateral pulmonary lesions. It was not possible to apply all four methods of diagnosis to every case recorded in the series of 101, so that the results of the methods are not strictly comparable throughout. The authors found that in the examination of 60 patients on the same two days, films of the stools yielded 20 per cent. and films from stomach washings 27 per cent. positives. When films examination of stomach washings was supplemented by guinea-pig inoculation of the same material the percentage of positives was raised to 33 per cent. In 10 cases a strictly comparative study of throat swab, sputum, stomach lavage, and stool examination were all carried out. The percentage of positives obtained was 30, 50, 60, and 60 respectively. Guinea-pig inoculations were also made as well as direct smears from the stomach washings, but bacilli were so readily found by direct smears that the biological test was unnecessary. The authors note that their positive findings for stomach lavage are definitely lower than those of other workers. Moreover they did not obtain much help from the more elaborate Armand Delille technique. They did not, indeed, find the stomach lavage method appreciably superior to the simpler methods, for although it yielded rather more positives the benefit was offset by the fact that lavage test is more troublesome to carry out and cannot be repeated frequently without inconvenience to the patient. It is perhaps not surprising that throat swab examination proved so unsatisfactory, but sputum examination might have been expected to yield better results than it did. It is, however, difficult to get samples of sputum in children and the sample obtained is not always a satisfactory one. The authors attempted also to correlate positive stomach lavage tests with clinical types of tuberculosis. They found that cases of destructive pulmonary tuberculosis showed 75 per cent. positive results as against 28 per cent. amongst clinically non-destructive lesions. Other forms of tuberculosis showed no positive results with the exception of one case of bone tuberculosis. It is concluded that a positive stomach lavage result augurs a grave prognosis.

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[1] Surg., Gyn., and Obst., July, 1933, p. 51.
[2] THE LANCET, 1933, i., 127.
[3] Jour. Amer. Med. Assoc., 1933, c., 1481.

MOUNT VERNON HOSPITAL

THE annual statistical report of the Mount Vernon Hospital, Northwood, submitted by the director, Sir Cuthbert Wallace, shows that in 1932 there were 383 cases treated and discharged for the first time. Nearly three-quarters of these cases were women, carcinoma of the breast and of the cervix being the preponderating groups. Of 21 patients with cancer of the lip and tongue treated one was a woman. Follow-up tables are being carefully developed, as sufficient numbers present themselves to enable division to be made by site, nature of the disease, and treatment adopted. At present the tables are confined to all cases (1930, 1931, 1932) of the tongue and rectum, and to all cases of carcinoma of the cervix, and of the breast which were untreated when first admitted. Cases of carcinoma of the breast tables are also subdivided according to treatment by interstitial radiation and by interstitial and surface radiation. Of the 36 cases in the former category observed for more than a year since treatment, 56 per cent. are reported dead, as compared with 30 per cent. of the 30 cases in the latter, but in the absence of an indication of the clinical grade that each tumour had reached when treatment was started the meaning of these figures is difficult to assess. The mortality recorded in all the tables other than that of carcinoma of the cervix where the "international degree" of the growth is stated must be read with the knowledge that many patients sent for treatment to a hospital known to give radiation treatment may have reached an advanced stage of their illness. All the numbers are, of course, still small, and the period of observation since conclusion of treatment relatively short, but the absence of "not traced" patients in all the groups gives promise of future valuable material.

In a note on the treatment of malignant growths of the upper jaw included in the report, Mr. Douglas Harmer and Mr. Stanford Cade emphasise the fact that experience has accumulated in the last ten years to show that these growths are so variable in type that no surgeon can undertake to treat them properly unless he has at his disposal all three main methods of treatment: surgery, diathermy, and irradiation. They maintain that growths in the jaw cannot be treated safely without radiation, that it is unnecessary to mutilate the patient by external incision through the skin of the face, and that nothing is gained by removal of the jaw. As most of the growths are complicated by sepsis, the first essential is to provide adequate drainage, and this can be obtained by removal of the hard palate and alveolus on the affected side or, in very localised tumours, by making a free opening through the incisor fossa. Such openings give free access to the growth, and the visible part of the tumour can easily be removed by diathermy without great risk of dissemination. Later the outlying malignant cells which are always present in the bony structure surrounding the cavity can be treated by irradiation. This method causes no deformity, and after the growth has been destroyed the opening in the palate can be closed by a well-fitting plate which is easily worn and allows the patient to speak and feed normally. A further point they stress is that the permanent opening in the palate allows the cavity to be inspected easily and early recurrences of disease detected and destroyed by diathermy or further irradiation. This method they have employed for over ten years with safety and very little distress to the patient. Complications are rare though occasionally the eye may be destroyed. As a rule no treatment of the glands of the neck is required. The general results have been, they report, undoubtedly better than those formerly obtained by surgery or diathermy alone. "When dealing with the highly malignant sarcomas and carcinomas one can confidently expect at least 50 per cent. of good primary cures and about 30 per cent. of long-standing results." With carcinomas of the ordinary squamous-celled types, they say: "life may be prolonged for several years even with extensive growths. Slowly growing tumours, such as endotheliomas, fibrosarcomas, &c., have a better prognosis and quite 50 per cent. can be cured for very long periods. Even recurrences can often be treated successfully."

The report also contains accounts by Dr. B. D. Pullinger and Dr. J. C. Mottram of work carried out respectively in the routine and research pathological departments; and a description by Mr. G. Cranston Fairchild of the X radiation technique and dosage employed for the various types of disease.

ŒSOPHAGEAL PEPTIC ULCER

ALTHOUGH peptic ulceration of the œsophagus was described by Albers in 1839, its general recognition as a clinical entity had to wait for the modern methods of diagnosis. It is, of course, much rarer than similar ulceration of the stomach and duodenum—Grüber's post-mortem statistics show 1 œsophageal to 30 gastric ulcers—and since, like these, it may cause no symptoms, there are probably many cases which remain undiagnosed. The symptoms may, on the other hand, be very similar to those of gastric ulcer (pain after food, hæmatemesis), and in the absence of dysphagia—due in the active stages to spasm and in the healing stages to organic stenosis—the lesion may readily be regarded as gastric. As with other forms of peptic ulceration it is supposed that contact with highly acid gastric juice plays a part in its causation, and it is a suggestive fact that pyloric ulceration and stenosis may precede the appearance of œsophageal symptoms. Such a sequence of events is described by J. W. Kamerling.[1] In this case partial gastrectomy had previously been done for pyloric ulcer, and the author suggests that the resulting alteration in the acid conditions in the stomach allowed the ulcer of the œsophagus partially to heal, with the consequent development of œsophageal obstruction, for which the patient ultimately sought treatment. The diagnosis was made by radiography, the ulcer showing as a well-defined niche immediately below the constriction, and confirmed by œsophagoscopy. The treatment adopted was cautious dilatation of the stricture and application of 10 per cent. silver nitrate solution to the ulcer, under direct vision through the œsophagoscope. Repetition of these measures was followed by a successful result, and Kamerling suggests that topical applications of this kind may prove to be the best method of dealing with this somewhat rare condition. The same form of treatment, combined with use of alkalis, is recommended by W. G. Howarth[2] in this country.

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[1] Nederlandsch Tijdsch. v. Geneesk., 1933, lxxvii., 3023.

DIFFERENTIATION OF SYSTOLIC MURMURS

THE systolic murmur is to-day largely neglected by cardiologists since it has been found to have little value either in diagnosis or prognosis. The reason for this is that such murmurs are perhaps more often found in the normal than in the diseased heart, and no sure method, based on the characters of the murmur itself, has hitherto been found by which the murmur of one can be differentiated from that of the other. The differentiation can only be made on other evidence of heart disease, and when that is forthcoming the murmur is no longer of significance. An attempt has now been made to distinguish pathological murmurs by analysing the sound waves obtained in graphic records of murmurs made with an electrical stethoscope.[3] Tracings were taken of systolic murmurs in 64 children, and it was found that in a large majority of the organic cases the recorded sound waves were of both high and low frequency, whilst in the functional a large proportion were of high frequency only. That in two cases where a clinical diagnosis was not possible the tracings were themselves of no value appears to show a serious defect in the method. The work is a contribution to the academic side of the subject, but in its present stage it can have little practical importance.

ACETABULECTOMY

A REACTION from the tendency to persevere over long periods in the attempt to cure tuberculosis of the hip without surgical intervention is noticeable. It was voiced by several contributors to the discussion at the International congress held last month.[4] Mr. A. Blundell Bankart has the support of most of his colleagues for his assertion [5] that in spite of the time, money, and energy expended on conservative treatment the results, at least in adults, are disappointing. It is a common experience for orthopædic surgeons to see recrudescence of hip disease in cases that have been quiescent for a period. The natural cure for a tuberculous joint is for the bony surfaces to come together and ankylose. This happens characteristically in spinal caries where it is impossible to prevent collapse of the vertebræ. Gordon Pugh's observation that tuberculosis of the hip often starts in the ilium immediately above the acetabulum, and only secondarily infects the joint itself, is of paramount importance in planning operative measures. The signs and symptoms due to the joint involvement overshadow those due to the primary lesion, with the result that treatment in the past has been concentrated chiefly on the secondary condition. That is why such operations as the old-fashioned excision of the hip, which really only amount to excision of the head of the femur leaving untouched the tuberculous osteitis of the ilium, are unsatisfactory. Similarly the operation of extra-articular arthrodesis of the hip-joint, now becoming popular, is, Mr. Bankart thinks, ill-conceived, because, if it succeeds in its object, it will prevent the bone surfaces from coming together and will permit the tuberculous abscess in the ilium to remain undisturbed and to become a constant source of danger in the future. He therefore recommends the operation of acetabulectomy which is essentially a real excision of the hip-joint, in which the acetabular portion is dealt with as radically as the femoral. The cases quoted and illustrated will encourage orthopædic surgeons to resort to this operation when the decision to abandon conservative measures has been taken.

A CENTURY OF FACTORY INSPECTION

A HUNDRED years ago the first Government inspector of factories was appointed, following the passing of the Factory Act of 1833. It is fitting therefore that this year's annual report of the chief inspector, the first to be issued by Mr. D. R. Wilson since he succeeded Sir Gerald Bellhouse, should contain historical reviews of the development of the functions and responsibilities imposed on the department by progressive legislation. Nine separate records are included: on employment, by Miss F. Isabel Taylor, who also contributes a section on welfare; on safety, by Mr. W. B. Lauder, with a note on safety in the generation and use of electricity by Mr. H. W. Swann; on health, by Dr. J. C. Bridge; on truck, by Miss Hilda Martindale; on piecework particulars, by Mr. E. J. Holmes; and on homework, by Miss Alice M. Ahrons; on the Government wool disinfecting station, by Mr. G. Elmhirst Duckering; and on the Home Office industrial museum, by Mr. L. Ward.

In a general introduction to these surveys Mr. Wilson comments on the formidable task before the four original inspectors in the enforcement of an unknown and unpopular Act. These inspectors—Horner, Howell, Rickards, and Saunders—must have been exceptional men, happily chosen for their delicate duties; they evidently relied for the successful discharge of their functions on education and persuasion rather than on the full exercise of the autocratic powers conferred on them. The early developments of the service, the centralisation of the growing inspectorate under one head, the appointment, in 1893, of the first two women inspectors, and the introduction of the principle of specialist inspection (Sir Thomas Legge, the first medical inspector, was appointed in 1898) are noted as landmarks. The effect of the early Factory Acts was more far-reaching than could have been anticipated. They initiated the system of compulsory education in England, and even authorised the inspectors to see that the teachers were competent. The Act of 1844 gave them power to annul a schoolmaster's certificate on no more serious grounds than his incapacity to read or write! The raising of the age at which children may be employed, and the limitation of the daily hours of work of women as well as of children started a movement of which the full development has not even yet been reached. The reason given in 1844 for making special provision for women has not lost its force in the intervening years—"they are more easily induced to undergo severe bodily fatigue than men."

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[2] THE LANCET, 1932, i., 1188.

[3] Bass, M. H., Mond, H., Messeloff, C. R., and Oppenheimer, Enid T.: Jour. Amer. Med. Assoc., July 1st, p. 17.

[4] See THE LANCET, July 29th, p. 242.

[5] Brit. Jour. of Surg., April, 1933, xx., 551.

As to health problems, the old prevalent scourges of lead poisoning and phosphorus necrosis have been largely overcome, only to be replaced by other diseases, such as occupational epithelioma, silicosis, and asbestosis, the existence of which was only dimly appreciated until recent times. It is satisfactory that the department concerned is not only alive to newly discovered industrial risks but alert to apply the results of recent research to their diminution.

RENAL ŒDEMA

THE sequence which leads up to œdema of the renal type has never been understood. Of late years increasing support has been found for Epstein's adaptation of Starling's theory, which attributes waterlogging of the tissues to a low protein concentration in the plasma with consequent lowering of the osmotic pressure of the blood to the level of capillary pressure. It has been so often demonstrated that œdema of what may for convenience be called the nephrotic type is intimately associated with an abnormally low concentration of the plasma proteins, especially the albumin fraction, that this relationship must be accepted. It is by no means clear, however, that the diminished concentration of albumin is actually the precipitating factor in œdema of this type. Observations of a contrary significance are recorded, such as loss of œdema without change in the blood protein concentration; moreover the part played by changes in the plasma volume is disputed.

In view of this lack of agreement about the water content of the blood in œdema and the part played by the plasma proteins, McClure, de Takáts, and Hinman[1] have made a detailed investigation of the blood of seven children with œdema of the nephrotic type. They have studied their cases in all phases of acute attacks with the object of discovering the time relationships between alterations in the plasma proteins, the water content of the blood, and the different stages of the œdema. If the œdema is caused by inability of the kidneys to excrete water, then the water of the blood should increase with advancing œdema and fall in diuresis. Alternatively, if it is caused by loss of protein from the blood, diuresis should be preceded by a rise in the protein concentration—notably in the albumin fraction. The careful and considered observations of these workers show decisively that the relative volume of the plasma is below normal during the advancing stages of œdema. Towards the onset of diuresis the relative volume increases, and the increase is maintained during diuresis and may even exceed the normal level. This is explained as the result of a reflux of fluid from the tissues to the blood in diuresis. The plasma proteins, and in particular the albumin, are below the critical level of Moore and Van Slyke (5·5 per cent. total protein and 2·5 per cent. albumin) during advancing œdema. They remain below this critical level during and just after the phase of diuresis. After diuresis there is a gradual return of the composition of the blood towards normal. Allowing for possible fallacies it is therefore concluded that there is no significant increase in the plasma proteins before diuresis. They interpret the process of œdema as a movement of water from the blood to the tissues controlled by some unspecified extravascular factor. The primary cause is not to be sought in the kidneys, which are able to excrete water as soon as it becomes available for excretion. The possible part played by the capillary walls is not discussed, nor do the authors of this paper attempt to explain the associated albuminuria. Nevertheless their contribution to our knowledge of the water balance in nephritic œdema is a substantial one.

RESEARCH ON FOOD

THE report of the Food Investigation Board for 1932[1] sets out the diverting researches which workers under the Board are conducting, and raises a number of problems to which future reports will no doubt give answers. The better storage of meat has received considerable attention, and carbon dioxide, in a concentration of about 10 per cent., has been found to double the storage life of chilled beef. Carbon dioxide is also useful for storing bacon, which can be kept in it at 5° C. for nine weeks. The absence of oxygen prevents rancidity, and the carbon dioxide seems to have a specific effect in preventing "taint." Pork has been kept fresh in it for 17 weeks, and the joints were exceptionally tender when eaten. If this discovery can be used in ships' holds, Australia and New Zealand will be able to send chilled instead of frozen meat to this country. Meat storage chambers as at present constructed on ships allow considerable leakage, and a new design will have to be introduced if this market is to be opened up. An experiment with bacon has shown that dry salt curing gives a much less salt and more tender product than tank-curing; the latter method is used in Denmark. Light has been thrown on the preservation of meat by freezing; deterioration is most rapid at −2° to −3° C., and almost nil at −20° to −25° C. The interplay of two factors determines the rate of deterioration at any temperature: removal of water by ice formation, which changes the pH, and fall of temperature, which slows down chemical change. A third important factor is the amount of bacterial infection produced during handling. Large carcasses can be stored better than small joints because the fat and connective tissue covering does not favour bacterial growth, whereas exposed lean is an excellent culture medium. Meat with a bacterial count of 43 per sq. cm. can be kept for 18 days at 32° F., and 100 per cent. relative humidity, but if the count is 17,000 the period is reduced to ten days. The preservation of fish is also being studied and plants for brine-freezing on trawlers have been designed. The tunnel-shaped kiln designed for research work on smoke-curing of kippers and haddocks has been adopted in commerce. The use of burning sawdust as a source both of heat and smoke has many disadvantages; in the new design the two processes are largely separated, electricity being the source of heat and sawdust smoke being blown in from outside, by electric fans, at the right temperature and humidity.

Much work has also been done on fruit storage, and experiments have been made to ascertain the optimum conditions for keeping various kinds of apples. So small a change of temperature as 1° C. may have a marked effect on wastage. In the course of the work, apples have been found, during ripening, to give a "vapour" which is poisonous to seedlings. Photographs in the report show its stunting effect on peas; the poison is apparently ethylene or something similar. It is only given off at and after the apple's "climacteric" (the respiratory change which all apples undergo as age advances). If the vapour from such apples is passed over other fruits the climacteric is at once induced in them. The same phenomena are seen in tomatoes and bananas. The volatile products from the banana seem to counteract the effect of a reduction of oxygen. This work should lead the way to a fuller understanding of fruit disease. Another very important study undertaken is an attempt to determine the extent and causes of fluctuation in the vitamin-A potency of halibut liver oil. Other workers[2] have recently called attention to the discrepancies that may be found, reporting a fivefold variation in potency over 17 months in a particular brand of cod-liver oil. They could not ascertain the cause, but were able to exclude seasonal influences and the basal diet, weight, and rate of growth of the experimental rats. The Food Research Board, working on the halibut, has excluded the position of the fishing ground, the food and liver-glycogen of the fish, and seasonal changes. The only clue at present is the discovery that just before exceptionally rich oils were found there was a large seasonal increase in diatoms in the Irish Sea. Since the fluctuations vary from 30 to 7600 units it is obviously of urgent importance that they should be understood and controlled. The active therapeutic principle for pernicious anæmia has been found in fish liver, and a palatable extract has been obtained and refined. Tentative commercial production has been arranged and clinical tests are being carried out.

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[1] McClure, W. B., de Takáts, C. B., and Hinman, Winifred F.: Arch. Internal Med., 1933, li., 819.

[1] Dept. of Scientific and Industrial Research. H.M. Stat. Office. 1933. Pp. 304. 5s.

THE ALVEOLAR HYDATID

THE relationship of the rare alveolar hydatid of man to the relatively common multilocular hydatid of animals and the ordinary hydatid of sheep and man has been vigorously debated for nearly 60 years. Probably at last it has been settled. The differences between the two loculated forms have been summed up thus by F. Dévé.[3] The bovine form has large intercommunicating loculi filled with gelatinous matter and always sterile, does not infiltrate lymphatics or produce metastases, and with the rarest exceptions has no disposition to central necrosis. The human form looks worm-eaten, is not always sterile; owing to the absence of a cuticular covering is apt to infiltrate lymphatics and produce metastases, and tends to central necrosis. Nearly two years ago H. Dew[4] reported the first case of alveolar hydatid from Australia. But it had this other great interest: it showed characteristics of both the alveolar and multilocular forms, and possessed also in places ordinary small sterile hydatid cysts. Finally, by the courtesy of M. Maresh, Dévé has obtained from the Pathological Museum of Vienna portions of a tumour which Posselt, in 1906, described as an ordinary hydatid and an alveolar hydatid lying in the heart of man, side by side, separate and distinct, with no connexion and no intermediate stages of structure. Dévé[5] had felt that if the two forms were really zoologically distinct the finding of both in such an unusual site constituted an extraordinary coincidence, and on examination of the Vienna material he did in fact find all intermediate conditions between the two supposedly distinct forms; so that this curious loculative change in the hydatid must be ascribed to some special effect of the environment. As Dew too had pointed out, this conclusion agrees with the well-known fact that hydatid of bone shows peculiarities suggestive of alveolar hydatid so long as it lies within bone, but that as soon as it reaches the periosteum it assumes the ordinary hydatid character. The reasonable conclusion from these facts is that there is one species of hydatid which occasionally grows in abnormal fashion as the result of abnormal, presumably extrinsic, stimuli; and that the health officer is not faced with the attempt to devise special preventive measures in the effort to combat infection from unknown strobiles inhabiting an unidentified host species.

AN ANÆMIA DEFINED

Wintrobe and Beebe[1] have done a useful service in reviewing what is known of idiopathic hypochromic (or microcytic) anæmia. As many as fifteen names have been given to this disorder, and their reason for preferring "idiopathic hypochromic" is that they believe that the two characteristics seen in all variants of the clinical picture are hypochromia and an absence of all the accepted causes for it; achlorhydria is not always present and is therefore omitted from the title. From an analysis of 473 cases recorded by other workers and 25 of their own, they describe the condition as an anæmia of unknown ætiology occurring especially but not exclusively in women in the third to the fifth decade of life. It is characterised by an insidious onset, long duration, and symptoms such as are common to all anæmias, and in addition, glossitis, stomatitis, dysphagia, paræsthesia without objective neurological finding, and often splenomegaly and koilonychia. There is often achlorhydria. The features of the anæmia are microcytosis and hypochromia, ready response to adequate iron therapy, and often a tendency to relapse when treatment is discontinued. The mean corpuscular volume in Wintrobe and Beebe's own cases before treatment averaged 65 c.μ. Figures as low as 50 c.μ were observed. They do not agree with many observers in this country that improvement during the first month of treatment may be slight. The available evidence suggests, they believe, that the fundamental disturbance is defective gastric secretion, though experiments in which beef steak digested with healthy gastric juice was fed proved negative. The preponderance of the disease in women, they agree with Witts, is probably due to the demands of menstruation and repeated pregnancy. Such factors as deficient diet, menorrhagia, blood loss from hæmorrhoids, and dysphagia are secondary and not primary factors in the ætiology.

WE regret to record the death, on August 1st, of Mr H. M. Wharry, surgeon for diseases of the ear, nose, and throat to the Bolingbroke Hospital.

INDEX TO "THE LANCET," VOL. I., 1933

THE Index and Title-page to Vol. I., 1933, which was completed with the issue of June 24th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 7, Adam-street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

LONDON HOSPITAL.—The special post-graduate course for former students of this hospital will be held from Wednesday, Oct. 11th, to Saturday the 14th. The annual dinner will take place on Thursday, Oct. 12th, at the Trocadero Restaurant Piccadilly-circus, W.

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[1] Wintrobe, M. M., and Beebe, R. T.: Medicine (Baltimore), 1933, xii., 187.

[2] Coward, Katharine H., Key, Kathleen M., and Morgan, Barbara G. E.: Biochem. Jour., 1933, xxvii., 873.

[3] Prensa Méd. Argentina, 1932, xix., 664.

[4] Australian and New Zealand Jour. Surg., 1931, i., 115.

[5] Compt. rend. Soc. de biol., 1933, cxiii., 223.

SPECIAL ARTICLES

BRITISH MEDICAL ASSOCIATION

ANNUAL MEETING IN DUBLIN

It was not an easy task for the local executive of the Dublin meeting so to arrange the 101st meeting that it would not suffer by contrast with the centenary meeting held last year in London. It did not so suffer mainly because no attempt was made to copy the London meeting, the Dublin executive wisely deciding to keep within their necessary limitations and to make most use of the advantages of their city. It was the universal opinion that the organisation was excellent, and indeed hardly anything for the comfort and convenience of the members was overlooked. The Leinster branch of the Association attracted many willing helpers from among lay friends, and all the public authorities from the Government down showed generous hospitality and a recognition of the importance of the occasion.

Dublin is not a large city and distances are not great, and therefore, although it was necessary to divide the sectional meetings between Trinity College and University College, little inconvenience was caused. The premises of the Royal Dublin Society which were generously lent to the Association for the sessions of the Representative Meeting and for the public lecture were probably the most convenient the Association has had at its disposal in recent years. The registration office and the trade exhibition were conveniently situated in the Mansion House, close to the principal hotels and near the centre of the city. There is beautiful country immediately surrounding Dublin, and a few minutes brought members and their ladies to the seaside, to the hills, or to one of the several golf-links which offered free hospitality to the members. Fortunately also for the greater part of the time the weather was fine, and if it was rather warm for dancing at the evening receptions, the fact did not appear to deter the energetic from that pastime. Only on the final two days was there any rain. The most notable of all the social functions was the State reception at Dublin Castle given by the Government, at which the guests were personally received by Mr. De Valera. This was only the second occasion since 1922 that the Castle has been used for a social function.

The gratitude of all who were present is due to the local honorary secretaries, Dr. J. P. Shanley and Prof. J. W. Bigger, for their indefatigable labour. But the influence which dominated and permeated the whole meeting was that of the President, Regius Prof. T. G. Moorhead. Knowing every detail of organisation, attending every function, conversing with everyone, he appeared equally at home in delivering a historical address or an after-dinner speech. His courtesy, his tact, his simple dignity impressed everyone, and those who met him for the first time during the meeting now share the respect and affection in which he has long been held by his colleagues in Dublin.

PROCEEDINGS OF THE REPRESENTATIVE BODY

(Concluded from p. 261)

Hospital Policy

FACILITIES FOR GENERAL PRACTITIONERS

Last year it was resolved that the Association should press, at the earliest opportunity, for facilities for general practitioners to treat their patients in general hospitals, and in order to emphasise this principle Dr. PETER MACDONALD, chairman of the hospitals committee, moved, on behalf of the Council, an addition to the hospital policy in the form of a paragraph requiring that accommodation should be provided in all districts for the treatment of patients by general practitioners. If effect was to be given to this principle, he said, the local divisions and branches must take action when any hospital extension scheme was under consideration. An increase of beds would be necessary before the principle could really be put into action, and therefore it was ultimately a question of finance. The hospitals were beginning to take a keen interest in the provision of private wards and beds, and the public were beginning to recognise that they could expect to get the best treatment and nursing under the conditions found in an institution. The Council had therefore authorised the hospitals committee to get into touch with bodies organising provident schemes for middle-class patients. This step had been taken but progress was bound to be slow. The addition to the hospital policy was supported by the meeting.

ADMISSION OF PRIVATE PATIENTS: THE BRIGHTON AMENDMENT

In the hospital policy of the Association the following provision found a place:

> When the special accommodation for private patients takes the form of a separate home or hospital provided exclusively for such patients, such home or hospital being an annexe of, or associated with, a voluntary hospital having public wards:
>
> (a) the patient should be allowed to select any available registered practitioner as his attendant.

Dr. Macdonald said that the distinction drawn in this paragraph was one of bricks and mortar. During the year a certain hospital had built an annexe containing private wards, and the Association had approached the governing body with a view to obtaining access for general practitioners to the new building. The governing body had replied quite courteously that they intended the new buildings for the use of their staff, and that it was in their hands to decide to what purpose the annexe should be put. "Your distinction," the Association was told, "is based on a question of building. But it is for the governors of a hospital to decide who shall use their beds, regardless of where they are housed." This was true, and the Council, recognising that the position could not be maintained, had found it necessary to alter the policy on the lines of a motion which Dr. Macdonald then stated. This provided that when accommodation was available for private patients (whether in rooms, wards, or special buildings) in a hospital with a visiting staff normally responsible for the care of all patients in the public wards, then a private patient should be under the responsible care of a member of the visiting staff in association with the general practitioner. But that where arrangements had been made by the governing body to permit practitioners not on the staff to have responsible care of private patients, the patient should be entitled to choose any available practitioner. If the hospital had no visiting medical staff ordinarily responsible for the care of patients in the public wards, the patient should be admitted under the responsible care of a private practitioner. These main provisions, confusing enough in themselves, supplied the gunpowder for a pyrotechnic display by Brighton, which left the meeting dazzled and bewildered.

First, however, Dr. Ernest Ward proposed, on behalf of Torquay, that the motion should be referred back to Council. He admitted, with disarming frankness, that the Torquay division had attempted to redraft the motion in accordance with the various views of the members, but had given it up in despair, and had decided the Council had better have another shot at it. The Torquay division thought that only one man—the general practitioner—should have responsible care of the patient in a private ward of a hospital; the motion, he said, was ambiguous on this point. Also, if any number of practitioners could make use of a hospital the position became impossible from the administrative point of view.—Dr. C. E. S. Flemming said this was a bogy. The Forbes Fraser Hospital at Bath was available to all the medical men in the neighbourhood, and there had never been the slightest difficulty in administration.—Sir Crisp English said that if general practitioners had free access to hospital they would not need to take post-graduate courses in order to keep abreast of scientific advances. If the Council's motion was carried the Association would have done much to consolidate the hospital policy. He pointed out the opportunities for preaching this principle which members of the B.M.A. had among the patients they saw daily.

Dr. E. H. M. Milligan (Brixton) said that the policy outlined by the Council had already been adopted in a small cottage hospital in his area with success and with complete harmony between consultants and general practitioners.—Dr. C. McK. Craig, Dr. Marion Gilchrist, and Dr. B. G. S. Belas all supported the Council's motion, and Torquay's attempt to get the matter referred back was quashed.

Then Dr. W. Pringle Morgan rose to put the Brighton amendment. And the spirit of Dr. E. R. Fothergill was projected into the meeting from distant Sussex, to stalk abroad like a benign poltergeist and upset everything. Dr. Morgan made a valiant attempt to explain the motion. It was based, he said, on the principles: (1) that it was desirable that hospitals should be available for both general practitioner and specialist treatment; and (2) that the patient should have free choice of doctor. Dr. Fothergill had drafted the amendment, and had sent round his arguments, printed upon paper of an arresting pink, for the consideration of representatives. Dr. Morgan begged them to study these arguments. If the Council's motion was carried the doctor would, in most cases, lose his patient and the patient his doctor as soon as hospital treatment became necessary.

In spite of the pink paper no one seemed to be able to place a finger upon the kernel of the Brighton amendment, though many tried. Dr. Macdonald said that the object of the amendment was the generally shared one of securing, in the best possible way, the access of general practitioners to hospitals. To gain an object one might use either suasion or a big stick, but if a stick was chosen it was wise to make sure that it was bigger than the other fellow's. If the Association tried to enforce its views on this matter it would be beaten: it had not so much as a small cane to use against the shillelah of the hospital governing bodies. The Brighton amendment was likely to antagonise such bodies. Dr. Fothergill, if he lived to be a hundred, would always be a
man in a hurry; his qualities were invalua
stimulus to activity, but not as a e
The functions of the hospital p

gandist; it was intended to act as a guide to divisions and branches and to enable the central body of the Association to give an answer when faced with specific questions.

Dr. R. Boyd (Manchester) supported Brighton on behalf of his division. The point of the amendment, he said, was to secure the admission of private patients to the private wards of a hospital on the same terms as they were admitted to nursing-homes.—To Dr. N. F. Adeney (Bournemouth) the point at issue was the fact that in the Council's scheme the patient was under the care of the consultant in association with the general practitioner. The Brighton amendment made the general practitioner the responsible person, with the opportunity of calling in a consultant if he wished. It was unlikely that this arrangement would antagonise members of hospital staffs, since the pure specialist would prefer to be called in for consultation only.—Mr. W. McAdam Eccles thought that in certain areas the type of institution designated by Dr. Cox as the home hospital might be used by general practitioners for their patients.

Mr. N. Bishop Harman said that no one had so far expressed the basis of the Brighton resolution. The universal postulate that the patient should have free choice of doctor was the nucleus upon which the amendment was built up. And anyone who built up a scheme upon a universal postulate was bound to get into difficulties. It was obvious that in some conditions it was impossible to have free choice of doctor: the villager, for example, had to go to the local doctor because there was no one else available. The amendment was based upon a fallacy, and he asked the meeting not to accept it.—Sir Henry Brackenbury said that the amendment was really concerned with the theoretical difficulty which had been embodied in the hospital policy two years ago—namely, the problem of distinguishing between hospitals in which there could be free choice of doctor, and hospitals in which there could not. Brighton was trying to maintain the bricks-and-mortar distinction which experience had shown to be untenable.—Sir Robert Bolam said that the Council's motion was so drafted that even a teaching hospital could admit practitioners to look after patients in private beds if the governing body agreed. He believed that it would meet the varying conditions up and down the country, and he asked the meeting to turn down the Brighton amendment; which they were content to do.

Dr. J. R. Dobbin moved an amendment on behalf of West Suffolk, which restated the provisions of the Council's motion in rather simpler terms.—Dr. Macdonald accepted this on behalf of the Council and the meeting endorsed his judgment. The final resolution read as follows:

(1) The normal method of admission of a private patient should be on the recommendation of a general medical practitioner, and if in an emergency a private patient is admitted without the cognizance of his private medical attendant, the latter should be informed immediately.

(2) When accommodation is provided for private patients in or in connexion with a hospital, either in the form of rooms, wards or special buildings, the following conditions should apply:—

(A) if the hospital has a restricted visiting medical staff which is ordinarily responsible for the care of all patients in the public wards, then either—

(a) The patient should be under the responsible care
r of the visiting medical staff in association
tioner of the patient. In this
ner should have free access to
such share of responsibility

and treatment of the patient as may be agreed upon between the member of the visiting medical staff and the private practitioner; or

(*b*) If arrangements have been made by the governing body to permit the access of practitioners not on the staff to have responsible care of their own patients, the patient should be entitled to select any available practitioner, but if at any time the treatment of the case involves the application of special skill or experience, the practitioner giving such treatment may be required to satisfy one or more of the following conditions:—

(i) That he has held hospital or other appointments affording special opportunities for acquiring special skill and experience of the kind required for the performance of the service rendered, and has had actual recent practice in performing the service rendered or services of a similar character, or

(ii) that he has had special academic or post-graduate study of a subject which comprises the service rendered, and has had actual recent practice as aforesaid, or

(iii) that he is generally recognised by other practitioners in the area as having special proficiency and experience in a subject which comprises the service rendered.

(B) if the hospital has not a restricted visiting medical staff, which is ordinarily responsible for the care of all patients in the public wards, the patient should be admitted under the responsible care of a private practitioner, and should be allowed, if necessary, to call in any consultant of his choice.

(3) The appropriate medical fees payable by the private patient in conditions mentioned above may be determined either according to a scale agreed between the medical staff and the board of management, or by private agreement between the medical attendant and the patient.

A proposal was introduced by Dr. F. C. MARTLEY on behalf of Kensington, requiring that applicants for admission to private wards should be submitted to a means test, which should vary according to the particular service required, and only waived in case of emergency. The wording of the motion was thought to be insufficiently lucid, and it was not supported by the meeting.

MEDICAL STAFFING: RESTRICTED OR UNRESTRICTED

In order to make the choice of doctor as free as possible, and to increase the opportunities of private practitioners to treat their own patients in hospital, Dr. MACDONALD moved, as a recommendation of Council, that the practice of unrestricted staffing of general hospitals of less than 100 beds should be extended; and that in any scheme for the extension of hospital accommodation, beds should be made available for the treatment of patients by general practitioners. This was an amendment of the existing hospital policy, which only recommended that the unrestricted staffing of hospitals of less than 100 beds should be extended.—An amendment by Torquay suggesting that the motion should be referred back to Council was withdrawn when the purpose of the motion had been explained.

Dr. FLEMMING hoped that the Council would give some attention to the question of restriction of hospital staffs. It should not be difficult to convey to the public that hospital accommodation was needed for the use of the general practitioner. Young men left hospital equipped with knowledge of the latest scientific technique, but they had no chance of using it. Older men realised the need of hospital beds to facilitate proper diagnosis and treatment.—Dr. R. G. GORDON thought that it would allay opposition if it was stated in the hospital policy that hospitals of less than 100 beds should retain the right to restrict their staff if there were special reasons for doing so.—The Council's recommendation was supported by the meeting.

MODEL LETTERS FOR HOSPITAL PATIENTS

Dr. WARD, for Torquay, moved that the Association should press for the strict observance of its recommendation that all patients attending hospital for consultation or treatment should bring with them a letter from their private medical attendant, whether they were members of a contributory scheme or not.—An attempt by Dr. J. A. HOOKER, for Bristol, to introduce the words "other than those of the indigent class" following the word "patients" was heartily rejected.—Dr. MACDONALD said that he was willing to accept the original motion if Torquay would withdraw the word "strict." The Council, he said, could not do much more than they were already doing. They had issued a model hospital letter, 70,000 copies of which had already been sold. He appealed to the divisions to press for their use until the custom became established.—Torquay was willing to waive the word "strict," and the meeting accepted the motion.

Dr. WAND moved, for Birmingham Central, that all patients who presented themselves without a doctor's letter at hospital for treatment should be examined by a medical practitioner on the staff of the hospital; they would fall into two categories: (1) emergencies; (2) non-emergencies. Emergencies should receive appropriate first-aid treatment, and, if no special hospital treatment was required afterwards, should be referred back to their own doctor. Non-emergencies, unless they required special hospital treatment, should be referred back to their own doctor without advice or treatment. A model letter to be sent to the doctor had been drawn up by Birmingham and included in the motion. The encroachments committee, appointed by his division, Dr. Wand said, had approached the hospitals and tried to get them to use the model letter; some had agreed to do so, others apparently consenting had not honoured the arrangement. If a workman had a pain in his stomach the foreman sent him to the office to get a hospital voucher, and his own doctor might not see him until two or three weeks later, when he was really ill. Or a patient might come into his surgery and say: "I've been told at the hospital to come to you, doctor, for my panel certificate." One, when asked why he had not come straight to the doctor for treatment, replied: "I thought you just gave the certificates, doctor." The feeling was getting about that there was something official about treatment at hospital, even if it was given by a junior house surgeon, and the family doctor was becoming a certificate writer.—Dr. MACDONALD said that this was an important resolution. There was evidently abuse of the facilities offered by such agencies as the Hospital Saving Association, for which the honorary staff must accept a certain amount of direct, and the general practitioner a certain amount of indirect responsibility. As the Association had just published a model letter of its own, that of Birmingham was redundant. He advised that the motion should be referred back to the Council for consideration, and to this Dr. Wand and the meeting agreed. Two more motions by Birmingham, arising out of the first one, were ruled out of order.

CONSULTATIONS AT HOSPITALS

Dr. MACDONALD moved that private patients should not be seen at the out-patient department of a voluntary hospital unless no other arrangement was practicable. It was sometimes convenient, he said, not only for the consultant, but for the patient and the general practitioner if a consultation could be arranged at a local hospital instead of in the consulting-room of the specialist, which might be a long way off. Adequate safeguards, to prevent abuse of the practice, were stated in the motion, and it was accepted by the meeting without discussion.

EXTENSION OF THE CONSULTANTS' LIST

A motion was introduced by Dr. J. Hudson, for Newcastle-on-Tyne, proposing that each regional consultants' committee should include representatives from each county in the area. How, he asked, was a man in Manchester to know whether or not a man in Newcastle was recognised by his local colleagues as having special proficiency or experience in some form of medical service? The motion was lost, however, on the strength of an explanation by Mr. Bishop Harman that the regional committees had no power of selection but had only to decide whether an applicant fulfilled the requirements for admission to the list laid down by the Association.

Dr. R. G. Gordon proposed, for Bath, that the Council should consider how to standardise the requirement mentioned by Dr. Hudson—namely, that a man should be recognised by other practitioners in his area as having special proficiency in respect of some service. In the past, any man who could get one or two friends to say he was a specialist could get on to the Association's list. In one case a man was put on the list who was unknown to all except one or two members of the division; on other occasions men had been put on the list because those who properly came under the category refused to serve. He suggested that the question might be decided by secret ballot in each case.—Dr. Macdonald accepted the motion for the Council, and the meeting passed it.

Dr. H. R. Frederick moved, on behalf of Swansea, that no consultant's name should appear on the list under more than one specialty.—Dr. C. O. Hawthorne explained that this had been the original intention, but that in some parts of the country where practitioners were few it was difficult to maintain the principle.—Dr. Macdonald said that it would be a hardship to the patient to insist on this principle. At his request the meeting referred the motion to Council.

PATIENTS UNDER LOCAL AUTHORITIES

Dr. Macdonald proposed a scheme of payments to be made where a local voluntary hospital gave in-patient treatment to patients for whom the local authority accepted financial responsibility. These were as follows: The local authority should pay the hospital, as maintenance cost of each patient, a sum not less than the cost of maintenance in the local authority's hospital for similar service, plus an addition of one-fourth in respect of medical services; 20 per cent. of the total sum should be allocated to the visiting medical staff.

The motion was accepted without discussion.—Dr. N. F. Adeney proposed, as a rider, that in the case of similar out-patient treatment a payment should be made representing the usual charge made by the voluntary hospital for such service, plus one-fourth for medical services. This was referred back to Council for consideration.

HOSPITALS AND DOMICILIARY ATTENDANCE

Dr. Adelaide Renshawe, for Kensington, referred to paras. 181–193 of the report of the committee appointed by King Edward's Fund to inquire into out-patient methods, and moved that it was contrary to the best interest of the patients concerned, as also of private medical practice, that arrangements should be made by hospital authorities for any form of domiciliary attendance otherwise than through the general medical practitioner. This paragraph, she said, suggested that hospitals should make use of district nursing associations in order to give treatment to patients who had ceased to attend.—Dr. Macdonald deprecated any strong expression of opinion by the Representative Body on this point. The patients to which the paragraph was evidently intended to refer were those who needed such daily attention as a nurse could give; the doctor would not care to receive a letter asking him to arrange for a nurse to carry out the hospital consultant's treatment. He asked the meeting to refer the motion back.—Sir Henry Brackenbury said he did not entirely agree with the arguments used by the chairman of the hospitals committee, and he thought that was another good reason for referring the motion back.—The meeting thought so too.

PROVIDENT SCHEMES

Dr. David Lees (Edinburgh and Leith) moved that the Council should be instructed to expedite the work of the conference of those interested in provident schemes, so that all divisions might have at their disposal the considered opinion of Council in all matters pertaining to the formation of such provident schemes in their own areas. These schemes, he said, were cropping up all over the country, and most of them had a closed panel and no income limit for subscribers. Often the promoters of these schemes refused to discuss the position with local practitioners.—The meeting supported the motion.

Road Accidents

Dr. J. W. Bone moved, on behalf of Council, that the moment was inopportune for approaching the Government with the suggestion that it should assume responsibility for the provision of emergency medical attendance in all road accident cases. Lord Danesfort, he said, had put forward a Bill to provide compensation for persons involved in road accidents, and since then Lord Moynihan had undertaken to sponsor another Bill setting out the policy of the B.M.A. If this was passed most of the objects desired by the Association would be achieved. A fee would be paid by the owner of the car, who would be covered by a slight addition to his third-party risk policy.—Mr. Eccles emphasised the increase of road accidents in recent years.—Dr. W. Paterson and Dr. E. H. T. Nash supported the motion, which was passed by the meeting.

In case the Bill should fail, Dr. Wand, for Birmingham Central, proposed that a new way of dealing with the difficulty should be adopted. Under this scheme the practitioner should send his account direct to the insurance company, and if the company found, upon investigation, that they were liable for the damage caused at the accident, they should remit the fee to the doctor. A scale of fees should be agreed upon by the insurance companies and the B.M.A.—Upon Dr. Bone's guarantee that the Council would give this method full consideration if the Bill was rejected, Dr. Wand agreed to withdraw the motion.

Public Medical Services

Dr. H. M. Stratford moved, on behalf of Kensington, that in view of the recommendation in the report of the committee appointed by King Edward's Hospital Fund to inquire into out-patient methods that minor cases should be referred to agencies providing general practitioner service, the Association should extend its support to the further expansion of public medical services.—Dr. Bone said that the motion was unnecessary, in that the Association was already pledged to do and was doing what Kensington asked, but he saw no harm in passing it. Neither did the meeting.

A further motion by Kensington, suggesting a conference of representatives of existing public medical services, was withdrawn on the assurance of Dr. Bone that the time was not ripe for such a gathering.

Dr. J. H. Mellotte, for Lambeth and Southwark, wanted the Council to establish a national public medical service, on the lines of the national ophthalmic treatment board. It was inevitable, he said, that there should be a different subscription in different parts of the country, but on questions of policy scattered public medical services would be better governed by a central body. At present, when a public medical service was started two or three local men had to do all the spadework and put up the initial funds. If a central body was established by the Association it could loan the initial cost of starting schemes from a central fund.—Dr. Bone opposed the motion. Why, he asked, should the Association organise a central scheme for this purpose? Dr. Mellotte might as well ask for a national scheme for general practitioners, or to regulate the fees charged by consultants. The subscriptions to public medical services were bound to vary very much in different parts of the country. On the other hand, the Council of the Association might be able to help by giving advice on advertising schemes for such purposes.—Dr. N. E. Waterfield said that it was difficult to raise the funds to start these services in some areas, and the Association might well consider giving an initial grant for the purpose.

Dr. H. D. Woodroofe asked the meeting to reject the motion. Continuity was already assured by the model scheme for such services laid down by the Council. A central committee was going to add greatly to expense.—Dr. T. F. Keenan, however, thought the question of expense was unimportant, since these schemes soon paid for themselves. The Association was the proper body to further their development.—Dr. A. McCarthy said that public medical services only flourished if local men were interested, and the best way to interest them was through their pockets. If they had to provide the initial funds their assiduity was amazing and ensured success.—Dr. R. Boyd said that this was a reintroduction of club practice which had been successfully combated 20 years ago. The motion was lost.

Infant Welfare and Antenatal Work

Dr. Stratford moved for Kensington that the B.M.A. should represent to local authorities that much infant welfare and antenatal work could be done by general practitioners, either as part of general practice or as part of the benefits of a public medical service. He pointed out that emergencies might arise at a moment when the antenatal clinic was closed, and if the mother had not been examined by her family doctor, no one was available who knew the details of her case.—Dr. D. H. Pain said that the B.M.A. had been making representations along these lines for years. In Kent, the only result had been the steady increase of public health employees. The general practitioner was not getting a fair deal; his livelihood was being taken from him behind his back.—Dr. C. M. Stevenson advised practitioners to tackle their own local authorities.—Dr. H. W. Pooler said that infant welfare work was, or should be, purely educational. Medical practitioners were all doing educational work under the arrangements of general practice, but it must be agreed that they did not reach everybody who needed such education. Did the motion imply that clinics ought to be abolished, or merely differently staffed? He certainly thought that the person who was to attend the patient should do the antenatal work, and that antenatal clinics were undesirable except in the form of consultative clinics to which general practitioners could send their patients for an opinion.

Sir Henry Brackenbury said that the Kensington motion was already the policy of the Association except as regards public medical services. The Act forbade local authorities from giving domiciliary attendance for these services, and therefore the Association could not suggest that they should be given through public medical services. He moved that the meeting should pass to the next business.—Dr. A. Greenwood (Maidstone) said that he had been 36 years in public health work, and consequently had early begun to take the bread out of the mouth of the general practitioner. In Kent, however, antenatal and infant welfare work had been left in the general practitioner's hands as far as possible, and nearly all the clinics in the county were actually run by local doctors in general practice.—Dr. E. H. T. Nash said that transgressions in the direction of treating patients were more commonly found at clinics run by voluntary bodies than in those under the control of local authorities. Well-run clinics were responsible for putting more work into the hands of the general practitioner than they took out. He thought that the future of the public health service was wrapped up in part-time work by general practitioners.—The meeting then passed to the next business.

Report on Arthritis

In presenting a report drawn up by the arthritis committee, Dr. R. G. Gordon said that it had proved impossible to draft a scientific classification of rheumatism, and the committee had therefore tried to differentiate certain well-defined clinical conditions. Lamentably little work had been done on the ætiology and incidence of rheumatism. Under the section on treatment the committee had tried to give full weight to those measures which seemed to them to have proved most useful. They had ventured to draw up a scheme for social service when times were better. It was suggested in the report that the spa hospitals of Bath, Buxton, and Harrogate, and the Red Cross Clinic, London, should collaborate in the preparation of lantern slides, cinematograph films, and casts illustrating the diagnosis and treatment of arthritis and allied conditions. When this material was complete, divisions and branches of the B.M.A. would be able to arrange lecture-demonstrations on the subject.—The meeting accepted the report with hearty thanks to Dr. Gordon and the rest of the committee.

Experiments on Animals

Dr. L. A. Parry moved, for Brighton, that a committee should be appointed by the Council to consider the whole question of experiments on animals. This matter had not been investigated for many years, he said, and the views of the public and the medical profession had changed. Many medical men doubted the necessity and even the value of experiments on animals, and recently 50 doctors had signed a publication called "Vivisection of Dogs: A Case for Exemption." Brighton asked for further consideration of this subject by a special committee.

Mr. H. S. Souttar, seconded by Dr. Macdonald, moved, as an amendment, that the meeting was convinced of the value of experiments on animals in the progress of medicine and the relief of human suffering, and was fully satisfied with the safeguards under which alone such experiments could be conducted in Great Britain and Ireland. One had only to think of insulin and diphtheria antitoxin, Mr. Souttar said, to recognise the value of animal experiments. The amendment was carried by a large majority.

Police Surgeons

Dr. J. NEWMAN moved, for Sheffield, that the Council should consider drawing up a scale of salaries for whole-time police surgeons. Many public authorities, he said, were now considering the appointment of such officers, who were expected to look after all the constables in the area—often averaging 240 miles a week by car in the discharge of their duties—and in addition were required to do special tests, such as blood grouping and counting and examination of stains. —Dr. WATERFIELD thought nothing should be done which would help forward the system of appointing whole-time officers.—Dr. J. T. D'EWART said that there were only three officers of the kind in England at present. Sheffield was the first city to appoint one, at a salary of £1000 a year; Leeds had followed suit, offering the same salary; Manchester, where the chief constable was a Scot, had offered £800. What would happen when Liverpool made an appointment? In Manchester there were 1600 police, whom the police surgeon was expected to attend; and these constables had no choice of doctor. The medical officer, moreover, was supposed to be a sort of super-sleuth, giving official evidence about murders and assaults. What became of his sick constables while he was in the witness-box? As a rider to the motion, he suggested that a scheme should be drafted whereby members of the police force should have free choice of doctor. Motion and rider were accepted by the meeting.

National Health Insurance Problems

Dr. ERNEST WARD proposed, for Torquay, that the Association should press for the abolition of the compulsory compilation of statistical panel information on record cards, which should be used only for clinical notes. In most cases, he remarked, the panel information on record cards was inaccurate, therefore useless for statistical purposes and irksome to maintain. In Northern Ireland only clinical details were put on the cards, and no attempt was made to keep a record of attendances and visits. If statistics were needed on these points it should be possible to select special practitioners to make investigations on special points.—Dr. JONAS said that the Insurance Acts Committee had been trying to get this policy adopted for some time. He could not accept the statement that these statistics were for the most part inaccurate, but agreed that they were to some extent useless.—Dr. PAIN said that Sir James Mackenzie had disputed the contention that bad records were better than none at all, holding that they only made confusion worse confounded. He thought that it would be worth while spending a fraction of the money now spent on the maintenance of records upon devising a practical method of record keeping, and told the story of a doctor who had kept his records with such accuracy that he was mildly reprimanded by the commissioner for having records 200 per cent. longer than those of anybody else.—He was supported by Dr. WILLIAMS, but the motion was lost.

Torquay was asked to withdraw an amendment suggesting certain alterations in the rules for certification, on the grounds that the proper place for this motion to be discussed was at the panel conference.—Dr. WARD consented for Torquay, and the meeting gave permission for withdrawal.

A motion, by Glasgow, that lectures on National Health Insurance practice should be given to medical students, and that the Association should pay a fee to the lecturers was lost.—Sir HENRY BRACKENBURY considered that the Association should not have to pay for something which should form an integral part of medical training.

The meeting passed without discussion a motion, by Edinburgh and Leith, that a protest should be made against any interference with the liberty of the insured person to change his doctor when he so desired.

Complicated Certificates

Dr. OSCAR WILLIAMS moved, for South-West Wales, that insurance companies should be prevailed upon not to demand complicated forms of certificates for accident or sickness claims; or pay a fee of one guinea each for them. In many cases, he said, the forms at present required were almost as complicated as life insurance forms: they asked for the full medical history of the patient, his blood pressure, and other details. It was unfair to the client that so much information should be disclosed to the insurance company; in some cases companies had cut patients off from their list of insured persons at the end of the year, following the receipt of such a certificate. Often the doctor received nothing for filling in such forms, which he might consider quite unnecessary.—Sir HENRY BRACKENBURY said that efforts had already been made to remedy this abuse. The motion was carried.

Income Limit in Contributory Schemes

Dr. WARD, for Torquay, urged that the Association should take action to ensure the strict observance of the income limit in hospital contributory schemes throughout the country.—Dr. PETER MACDONALD reminded the meeting that the Association had no powers by which it could ensure such strict observance, though steps had been taken already to promote it. At his suggestion the meeting passed to the next business.

A Medical Diplomatic Service

A motion was introduced by Dr. H. M. STRATFORD, for Kensington, calling the attention of the Council to the possible advantage of organising a health department in the British Diplomatic Service. If it was important to have military attachés, he said, it was equally important to have health attachés who would keep the government informed of the health services and legislation abroad. The meeting thought there was something in this idea, and gave Kensington their support.

Shortage of Officers for the Defence Services

Dr. F. W. GOODBODY said that for the last four or five years there had been complaints of the conditions under which medical men worked in the fighting services. Three years ago the Council had drawn up a series of recommendations which they thought would remedy the difficulty of getting qualified men to enter the services: at that time the medical men in the Army nearly all held the rank of major, and it was difficult to secure the necessary entry of 25 a year. The R.A.F. and the Navy were also suffering. Since the war there had been no examination for medical men entering the services. In 1925 the Council approached the War Office and some improvements were secured. Two years ago the Warren Fisher Committee had been appointed to inquire into these conditions; representatives of the Association had given evidence before the committee and had been sympathetically received. When the economic crash came the committee had stopped sitting, but recently the Association had pressed for a reply and the committee had begun to sit again and were to issue a report shortly. The recommendations would probably go some way to meet the requirements of the medical profession, especially in relation to younger men entering the service. Dr. Goodbody therefore proposed a motion in the following terms:

> That the Council be instructed to consider the report of the Warren Fisher Committee when published, and the action of the Government arising thereout. If the action of the Government is considered to be unsatisfactory the Council shall have full authority to advise members of the profession seriously to consider the disadvantages to which they are liable if they accept service as officers in the Royal Naval Medical Service, the Royal Army Medical Corps, or the Royal Air Force Medical Service, including the medical services of the Royal Naval Reserve, the Territorial Army, and the Auxiliary Air Forces.

Mr. H. S. Souttar, seconded by Dr. R. G. Gordon, moved, as an amendment, that all the words after "authority" should be deleted, and replaced by the words "to take such action as they consider necessary." He was in full agreement, he said, with Dr. Goodbody's motion, but it was not tactical to hold a pistol to the head of one's opponents in the midst of negotiations. It was probable that the Warren Fisher report would remedy the position to a great extent.

Mr. Bishop Harman said that the pistol, as Mr. Souttar called it, was well known already, and it was folly to try to hide it.—Surg.-Admiral A. R. Thomas begged the meeting not to pass the amendment. The medical officers in the services were looking for help: if action became necessary the Council ought to be able to take the required steps at once, without having to wait another year for the sanction of the Representative Body.—He was supported by Wing-Commander Stanley Turner.

Mr. Souttar asked leave to withdraw his amendment, and the motion was passed unanimously.

The deliberations of the Representative Body being completed the annual general meeting was held at which Lord Dawson of Penn, the retiring president, relinquished the chair to Prof. T. G. Moorhead, who in his turn introduced Mr. F. W. Ramsay, president-elect for 1934–35. The meeting was then adjourned to the afternoon, when the President gave, before a brilliant gathering, the address on the Work of the B.M.A. in Ireland, which was printed at the front of The Lancet last week.

THE ANNUAL DINNER

On July 27th members and their ladies dined together at the Gresham Hotel, in O'Connell-street, under the presidency of Prof. T. G. Moorhead, and had the privilege of hearing Mr. Denis Cox, who sang exquisitely a number of ancient songs in Erse. Mr. W. Lemass sang Irish songs of a more modern date. Prof. Arthur Burgess proposed "The City of Dublin"—the perfect host, as he said. Alderman Alfred Byrne, for the fourth time Lord Mayor of Dublin, replied to the toast. There was, he said, a great body of men and women in the city who would feel helped ann encouraged by this visit of the Association. He had been deeply impressed by the paper on slum-dwellers read at one of the sectional meetings. In Dublin people were clamouring for houses—they lived as many as 12 in one room. The municipality had built 300 cottages to be let at a reasonable rent, and they had 11,000 applications for them. The housing problem had to be faced in every country, and those who helped in this work would get good value for their money. All Ireland, he said, appreciated the work of the lady sitting beside him (Lady Aberdeen) who had helped so much in the fight against tuberculosis in Ireland. It would be better for all parties, he thought, if we all had a little less condemnation for those who differed from us.

Mr. Hugh Kennedy, Chief Justice of Saorstat Eireann and a survivor of the festivities of the 1887 meeting, proposed "The British Medical Association." There were, he said, survivors of the 1867 meeting, but they were medical men and it was their business to survive. The year 1867 had been a year of revolutionary activities, and had been marked also by progress in medical work. Now, in 1933, the Irish were rebuilding their national life after an effective revolution. They were not confining themselves to military exercises, but were setting out to reform the poor-law and public health service. Two years ago, in opposition to the law existing at that time, measures had been begun in the field of public health, with the result that they were now developing well-equipped hospitals, and offering a stipend for those engaged to use them. On the question of clean milk, they hoped to follow the advice given by one of their councillors, and take the bull by the horns. Sir Henry Brackenbury in replying said that the kindness of the Irish welcome was robbing the guests of adjectives to express it. The British Medical Association was a voluntary professional society, having for its objects the honour and interest of the profession and the advancement of medical science. Laws and social customs might differ in the countries embraced by the Association, but everywhere the best interests of profession and public were identical. He had seen such friendly zeal in a common cause among members of the Association, that he believed their annual meetings contributed to the friendliness of fellow workers, the sympathy of peoples and the better understanding of administrators and governments.

Mr. F. C. Crawley, president of the Royal College of Surgeons in Ireland, proposed "The Guests." At the meetings of the Association, he said, they had offered full knowledge of the subjects discussed, with open hands, and had shown that there were other ways of looking at things than the Irish. Mr. T. L. Lindsay Sandes, president of the South African Federal Council, who had not visited his native city of Dublin for many years, replied for the guests, and spoke of the many landmarks which he found unchanged. He was followed by Alderman Hubbard Clark, who made the speech of the evening by telling droll stories linked only by the phrase "and that reminds me."

Sir William Wheeler proposed "The President" who, he said, was to be seen at his best at the meetings for the reorganisation of the Dublin hospitals, where he was an illustration of the proverb that the winds and the waves favour the best navigator. In replying, Prof. Moorhead revealed that the meeting owed its origin to the proposer of this toast. For himself he believed that the medical profession would play an important part in the reconstruction of the world. Diodorus, writing of ancient Egypt, said that the manner of life there was so well arranged that it seemed to have been organised by a physician rather than a lawgiver, and Disraeli had expressed the same idea when he said that public health was the foundation on which depended the happiness of the people and the power of a nation.

HONORARY FELLOWSHIPS AND DEGREES

During the meeting honorary fellowships or degrees were conferred upon a number of medical men :

UNIVERSITY OF DUBLIN (TRINITY COLLEGE)

D.Sc.—Dr. Gordon M. Holmes and Prof. Emil Novak.
M.D.—Dr. E. K. Le Fleming and Mr. H. S. Souttar.

NATIONAL UNIVERSITY OF IRELAND

LL.D.—Prof. T. G. Moorhead and Sir Humphry Rolleston.
D. Litt.—Dr. T. P. C. Kirkpatrick.
M.D.—Sir Henry Brackenbury and Sir Robert Bolam.
D.Sc.—Sir Edward Sharpey-Schafer (in absentia), Prof. Joseph Barcroft, Dr. Rufus Cole (in absentia), Prof. Dean Lewis, and Prof. T. H. Milroy.
M.Ch.—Sir Hugh Rigby and Mr. J. F. O'Malley.
D.Sc. (Public health).—Prof. J. M. Beattie and Sir John Moore.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

Hon. Fellowship.—Lord Dawson of Penn.

ROYAL COLLEGE OF SURGEONS IN IRELAND

Hon. Fellowship.—Prof. Dean Lewis, president of the American Medical Association.

ROYAL ACADEMY OF MEDICINE IN IRELAND

Hon. Fellowship.—Mr. N. Bishop Harman, Dr. W. G. Willoughby, and Dr. C. O. Hawthorne.

SECTION OF OBSTETRICS AND GYNÆCOLOGY

THE opening meeting of this section on July 26th, under the presidency of Dr. BETHEL SOLOMONS, was devoted to a discussion on

Puerperal Sepsis

Dr. LEONARD COLEBROOK (London), who read a paper on ætiology and prevention, stated that nearly 20 per cent. of all deaths due to childbearing followed normal labour. From investigations and experiments the tentative conclusion was warranted that in the majority of cases the source of the infecting organism was the throat or nose of the attending doctor or nurse. Less commonly the patient's own throat or nose was the source. Nasal infections were specially important because hæmolytic streptococci might easily be conveyed on the fingers in tenacious nasal secretions. Handkerchiefs were a great source of danger in a labour ward. Investigations had shown that 5 to 30 per cent. of all persons attending midwifery cases carried the hæmolytic streptococcus in the throat or nose. In spite of this, most of these carriers were not specially dangerous. Only those who yielded a profuse growth of streptococci, or who had recently had a tonsillitis, laryngitis, or antral infection should be excluded from contact with parturient women. The dangerous carrier must always be watched for. The use of efficient masks would help to reduce the risk of droplet infection. Every patient who developed pyrexia should have a vaginal swab examined, and if hæmolytic streptococci were present she should be isolated from all other lying-in women. Every midwifery hospital should have access to a bacteriological laboratory of good repute. Patients should be warned of the danger of conveying infection to the vulva on the fingers. He had carried out a series of experiments to determine the efficiency of skin sterilisation by different methods. A solution of common yellow soap killed hæmolytic streptococci more quickly than the usual strength of lysol or perchloride of mercury ; toilet soaps were much less active. In heavy contaminations soap was not sufficient. The most reliable method was to scrub the hands, and then to rub into the skin a teaspoonful of neat Dettol, or a 30 per cent. tragacanth paste of dettol. Skin so treated (or skin painted with a 2 per cent. solution of iodine) remained bactericidal for several hours. Gloves were easily sterilised on the hands by soaking for two minutes in 2 per cent. solution of dettol, lysol, or iodine, or in a 0·2 per cent. solution of biniodide of mercury in spirit.

DIAGNOSIS

Mr. L. CARNAC RIVETT (London) classified the cases as follows : (*a*) local sepsis in the genital tract ; (*b*) septicæmia ; (*c*) peritonitis ; (*d*) infected thrombosed pelvic veins ; (*e*) salpingitis and pelvic cellulitis ; (*f*) infection of the urinary tract. The diagnosis of these conditions was difficult and often the classical signs and symptoms were entirely absent. He had seen at autopsy three pints of pus in the peritoneal cavity of a patient in whom peritonitis had never been suspected. In local uterine sepsis subinvolution was present, but the uterus was not always tender. In perineal infections the vulva was œdematous. In septicæmia rigors were not always present. Anaerobic as well as aerobic blood cultures must be made. The death-rate in hæmolytic streptococcal septicæmia was 80 per cent. ; in the anaerobic streptococcal type it was 20 per cent. In puerperal peritonitis pain and rigidity were rarely found. Sometimes pain was elicited by the sudden release of pressure of the examining hand. Pain could also be produced by pressing the uterus from side to side against the sacral promontory. Diarrhœa and distension were important signs of peritonitis. In early cases he advocated opening the abdomen through a midline incision 1½ in. long, and draining the pelvis. Infected thrombosed veins often escaped diagnosis ; repeated rigors were an important sign. Urinary infections were very common and often caused a sudden high temperature, sometimes associated with a rigor. In such cases pain, frequency, and dysuria were usually absent, and the diagnosis rested on immediate examination of a catheter sample of urine.

TREATMENT AND PROPHYLAXIS

Mr. E. FARQUHAR MURRAY (Newcastle-upon-Tyne) thought that too much stress had been laid on droplet infection. Parturition took place through a germ-infected area where tears and lacerations were very frequent, and it was only to be expected that sepsis would supervene in a number of cases. In the Princess Mary Hospital he had found that 68 per cent. of the staff carried the hæmolytic streptococcus in the throat, yet in 183 clean cases delivered by this team there were only three trifling and transient notifiable pyrexias believed to be due to sepsis. He did not advocate the use of masks. By strict segregation of clean, suspect, and septic cases the sepsis rate of the Princess Mary Hospital had been reduced from 6·7 per cent. to 3·6 per cent. Better organisation of the nursing service throughout the country would lower the sepsis rate. Treatment consisted of fresh air, avoidance of effort, cold sponging in hyperpyrexia, an assimilable diet, and a citrate mixture. Antiscarlet fever serum in doses of 10 to 15 c.cm., repeated on one or more occasions, appeared to be better than the older polyvalent serums. Local sepsis must be attended to ; it was present in some 45 per cent. of cases.

Dr. GIBBON FITZGIBBON (Dublin) read a short paper in which he criticised the statistics relating to the incidence of streptococci in the vagina before and during labour, and their relation to puerperal fever. He emphasised the importance of trauma, and of prolonged ischæmia of tissues, as factors in the production of sepsis. He upheld the old antiseptic routine which had given such good results with the Queen's Institute nurses, in the East End Maternity Hospital, and in the Dublin hospitals. Practitioners with special midwifery experience should be encouraged by health authorities, and only such practitioners should be called in by midwives. He thought that intra-uterine douching was dangerous, and might cause a local sepsis to become a peritonitis.

Prof. C. G. Lowry (Belfast) held that a woman with puerperal sepsis had the best chance of recovery if she were put under efficient nursing care in a special hospital at the earliest possible moment. Elementary rules of technique were often broken. Vaginal examinations were often made without first separating the labia and cleaning the introitus. Masks must be efficiently made and used with care. Vitamin A and D preparations increased resistance. Bruising of tissues could be avoided by a clean episiotomy. The third stage must be properly conducted if the uterus was to remain blood-tight. He himself used a post-partum vaginal douche, or intra-uterine douche if there had been manipulation. In 1187 cases so treated he had had only one death. Sedatives in the first stage would avoid premature efforts at delivery. A patient with sepsis was often profoundly anæmic. If the hæmoglobin content were under 50 per cent. repeated small blood transfusions were of value. Antiscarlet fever serum, intra-uterine glycerin, and autogenous vaccines were all of value.

Dr. Joan Rose (Edinburgh) gave details of her research work on the vaginal flora before and during labour, and its relation to puerperal sepsis. Individual practitioners had such limited experience of puerperal fever that there was a tendency to under-estimate the need for prophylactic measures. She advocated the use of masks and a strict routine.

Prof. R. W. Johnstone (Edinburgh) made a strong plea for a united stand concerning preventive methods. The positive evidence of the danger of droplet infection was convincing, and far outweighed any negative evidence. He likened the use of a mask in obstetrics to the use of a red rear light by a cyclist. Both might frequently be dispensed with, without disaster following, but this fact did not prove that the precautions were therefore needless. He showed a graph illustrating the sepsis-rate at Edinburgh Royal Maternity Hospital. There was a striking drop following the introduction of masks.

Dr. C. M. Craig (Kendal) discussed the cause of the lowered resistance to infection which led to puerperal fever. Till this was known, it was misleading that statements should be made which the public interpreted as stigmatising the general practitioner.

Mr. Leonard Phillips (London) spoke of the experience of Queen Charlotte's Hospital workers in the treatment of puerperal peritonitis. The classical signs and symptoms were absent in these cases. Early operation as described by Mr. Rivett gave good results. Pyelitis was often overlooked and the ketogenic diet was very useful for it.

Dr. G. W. Theobald (London) protested against the dictatorship of the bacteriologist which had led to an unreasoning belief in the efficacy of masks. Trauma was an important factor in puerperal sepsis; high forceps should never be used. Midwives should not be trained to make vaginal examinations.

Dr. Bethel Solomons gave some details of the practice at the Rotunda Hospital. He did not use masks. An examination of the throat swabs of 100 members of the staff had not shown the presence of any hæmolytic streptococci. During his mastership 26,000 cases had been delivered without an outbreak of sepsis. He agreed that a person with tonsillitis or other active infection should not attend parturient women.

SECTIONS OF MEDICINE AND RADIOLOGY

On July 27th a combined meeting of the sections of medicine and radiology was held, the chair being taken first by Prof. Henry F. Moore and later by Dr. T. Garratt Hardman, respectively president and vice-president of the sections.

Dr. John Parkinson (London) opened a discussion on

Radiology in the Diagnosis of Heart Disease

He claimed that X ray examination had a place in cardiac diagnosis because it furnished us with detailed evidence beyond the reach of percussion. The purpose of percussion was to decide the size and shape of the heart, but difficulties due to obesity and emphysema were shirked and the faith necessary for successful percussion was greater than this generation possessed; it was a valuable bedside method, but limited in scope. The main object of radiology was the same as that of percussion and, he pointed out, the heart was well placed for X ray inspection, being surrounded by translucent lung which also showed up the pulmonary artery and its branches. He stressed the protean individuality of the cardiovascular shadow. Modifications due to thoracic build and overweight might be as great as those due to disease, and therefore interpretations of the many patterns of normality were important. Radioscopy might suffice in some cases, as by turning the patient all views could be obtained, but if a permanent record was required. records of one or both oblique positions should be included. He then showed three diagrams of the three standard positions, observing that the shadow to the right above the right auricle was made by the superior vena cava, not the aorta. He pointed out that formerly clinical reference to size was mainly to the heart as a whole, measuring the width from the outer border of the left ventricle to that of the right auricle; but one should remember that the enlargement was generally regional, being a localised product of the lesion. The right ventricle might appear high on the left border and the left auricle often contributed part of the right border. He omitted discussion of the recognised methods of measuring the cardiac outline, as other speakers were to mention these. Though the cardiothoracic ratio would probably come into general use, it should not be applied without allowing for height and weight. He admitted that a thorough X ray examination might not determine the presence of slight enlargement without the use of other means of making a diagnosis. The findings of radiology must be related to the whole clinical picture. He noted that cardiac enlargement was often simulated by the displacement due to scoliosis. It was more important to decide whether the heart was misshapen by pathological change than whether it was enlarged as a whole. Its shape was mainly determined by the relative enlargements of its several components. The size of the aorta might be diminished as a result of mitral stenosis and the pulmonary artery in congenital malformations. Dr. Parkinson showed how X ray findings could be correlated with morbid anatomy, demonstrating a photograph of an isolated heart with mitral stenosis and pointing out its resemblance to the X ray picture recognised as typical of mitral stenosis. He described other conditions in which the X ray picture could give definite confirmation of a diagnosis. In toxic or exophthalmic goitre after the very early stages an enlargement of the whole heart was present and often a prominence of the pulmonary artery. A case of coronary atheroma or myocardial disease might show a distinctive X ray shadow. He concluded with a warning against the practice of distressing a patient by confronting him with X ray findings as if they implied a complication which magnified his disease.

Dr. P. J. KERLEY (London) claimed that radiology had improved the diagnosis of enlargement of the heart and aorta, but in the realm of pure pathology of heart disease it had contributed practically nothing. The reasons for this failure were largely technical, including the rapid movements of the heart and the lack of knowledge of any drug which rendered the blood more opaque than the muscular wall of the heart. He stressed the value of screening, which revealed the size of the heart, variations in the position of the heart due to deformities of the bony thorax or emphysema, and also the shape of the heart and the enlargement of any of its chambers. He explained the use of orthodiagraphy, teleradiography, and kymography. With orthodiagraphy only the central ray was used, to prevent distortion on the screen. This ray was manipulated round the shadow of the heart, and was marked at suitable places. Teleradiography enabled parallel rays to be thrown at a distance of two metres; distortion was negligible. The value of kymography had yet to be substantiated. He discussed the normal heart, its relative width up to the age of 4 years, and the opacity of the great vessels. From 4 to puberty the heart shadow was of a long narrow type. In the average adult the heart was oblique. The heart-lung coefficient averaged 1 to 2. Normally there was no notch separating the auricular and ventricular shadows. He stressed the errors that could be made by unconfirmed percussion and palpation, and mentioned a complicated system of X ray measurements which was valuable in physiological investigations but rarely necessary in clinical practice. The "small heart" was more apparent than real; its appearance was due to a low diaphragm which rotated the heart slightly to the right and forward. In pregnancy as the diaphragm was raised the heart seemed to change its shape; a small heart then looked like an unusually wide heart until after parturition, when it reverted to its former shape. Dr. Kerley doubted the truth of Wenckebach's theory that the low diaphragm lessened the respiratory assistance to venous return and caused a real small heart. He suggested that the "small heart" of tuberculosis might be due to the compensatory emphysema depressing the diaphragm. The difficulties of diagnosis of slight enlargements were very great; a rapidly pulsating heart and an elevation of the left diaphragm due to abdominal distension gave a false impression of enlargement. He had yet to see a case in which X ray evidence of enlargement in early myocardial disease preceded electrocardiographic alterations. A few points in differential X ray diagnosis were worth noting. An aorta denser than the left ventricle was atheromatous. An aorta not dilated, but as high as the first costal cartilage, was atheromatous, unless displaced by lung conditions. Visible atheromatous plaques were not necessarily of serious import.

Dr. Kerley discussed characteristic alterations in congenital and valvular diseases. Mitral stenosis showed many variations, the usual loaf-shaped shadow or the enlarged left ventricle showing in the first oblique position or even overlapping the right auricle. X rays were particularly useful in the diagnosis of the complications of mitral stenosis, for example, the displacement of the œsophagus by the left auricle; enlargement of veins, not the actual displacement, was probably the cause of the associated dysphagia. An enlarged left auricle might cause paralysis of the left recurrent laryngeal by pressure between the left main bronchus and the aorta. He concluded by describing the changes in the lungs due to passive hyperæmia associated with mitral stenosis or other cardiac causes.

Dr. D. EVAN BEDFORD (London) discussed the applications of radiological examination in congenital heart disease and diseases of the pericardium in older children and adults. In congenital heart disease radiology was of the greatest value, for the defect was an anatomical deformity, not a disease of muscle. In coarctation of the aorta the scalloping of the under surfaces of the ribs was pathognomonic. Dilatation of the ascending aorta and an abnormality of the aortic knuckle might also be present. Patent ductus arteriosus and simple pulmonary stenosis both presented, usually, dilatation of the pulmonary artery; normally, in both, cyanosis was only a transient or terminal event. Patent interauricular septum showed an enormously dilated pulmonary artery and its branches; this was of great importance, especially as no other signs might be present. In Fallot's tetralogy, the commonest adult congenital lesion causing deep cyanosis from birth, a concavity was seen in the region of the atresic pulmonary artery, and the aorta was enlarged and sometimes displaced to the right. A right-sided aortic arch was sometimes associated with Fallot's tetralogy. In pericardial effusion the widened pedicle and absence of pulsation were noteworthy. It was important to take serial radiological observations in cases of effusion as the changes were much greater during absorption than those seen in the shape of the heart during improvement following cardiac failure.

Dr. J. CRIGHTON BRAMWELL (Manchester) said that the transverse diameter of the heart shadow should not exceed half the internal diameter of the thorax, but that the lie of the heart varied with the shape of the chest and the build of the subject. He mentioned formulæ by which it was possible to predict the transverse diameter of the heart from weight and height in normal healthy subjects with an accuracy of about 10 per cent.; but it was important to remember that athletes who took part in types of sport involving prolonged and severe physical exertion had unusually large hearts. On the other hand, perfectly healthy men sometimes had very narrow hearts. He believed that radiology could tell us all that we could learn from percussion and palpation regarding the size of the heart with a much higher degree of accuracy than either of these methods. It was capable of revealing slight degrees of cardiac enlargement even in obese and emphysematous subjects. Radiology's most important contribution to cardiac diagnosis was the information which it yielded regarding alteration in shape of the heart. This enabled the observer to ascertain which chambers were enlarged, and thus threw light on the cause of the enlargement.

Dr. LEONARD ABRAHAMSON (Dublin) described his routine method of radiological examination of the heart. Whilst measurements should not be invested with too much importance, they were useful records in individual cases. The cardiothoracic ratio was of more constant value in the detection of true cardiac enlargement, though there were variations, within the normal, due to differences in the build and weight of patients. He thought it need not be feared that increasing use of instrumental methods would spell increasing dependence on such methods. On the contrary, only by the exhaustive use of instruments could we hope ultimately to emancipate ourselves from the use of an instrument in some of the conditions in which it is at present a necessity; an example of this having been achieved was in the use of electrocardiography in the diagnosis of cardiac irregularities. In a doubtful case of established mitral stenosis, visualisation of the enlarged left auricle was of great value. Syphilis of the aorta, in the absence of a diastolic murmur, was difficult, even impossible, to diagnose by clinical methods. X ray examination, showing changes in density, in shape, and in size of the aorta was invaluable. Dr. Abrahamson instanced cases in which obscure cardiac failure had been caused by retrosternal goitre. He also discussed the difficulty of diagnosing slight enlargement of the heart in disease of the myocardium, and the value of X rays in pericardial effusion.

Dr. **WM. HOPE FOWLER** (Edinburgh) submitted a communication on the methods of X ray in heart measurement, using an elaboration of the left postero-anterior oblique position, which had proved extremely accurate in measuring the heart and aorta. This method was found successful in determining either right or left cardiac enlargements in over 75 per cent. of his series of 73 cases in which the cardiac pathology was checked at autopsy. He mentioned the mathematical formula of Kahlstoff for determining the volume of the heart: Volume=F.T.K., where F is the superficial area of the sagittal orthodiagraph, T the largest diameter of the heart, K a constant= 0.63. In the normal person the heart volume depends on body weight. The ratio heart volume in cubic centimetres divided by body weight in kilogrammes should be 8 in the male and 7 in the female.

Dr. **J. RALSTON PATERSON** (Manchester) reported some work which confirmed the opinion that after exercise the heart volume diminished. Others had proved that the X ray anterior view was reduced after exercise; he had found a reduction in lateral views also. In all the cases the electrocardiogram showed no change.

Dr. **T. GARRATT HARDMAN** (Dublin) stressed the necessity for coöperation between the radiologist and physician.

Short Papers

Dr. **M. A. CASSIDY** (London), vice-president of the section of medicine, then took the chair.

Dr. **E. T. FREEMAN** (Dublin) spoke on the

TREATMENT OF FLUID IN THE PLEURAL CAVITY

He considered only those effusions due to infective bacteria. The tuberculous effusions might be left alone if small in quantity or diminishing within four weeks, and if not associated with marked pyrexia or cardiac or respiratory distress. An argument against removal was that the pressure of the fluid acted as a splint to the lung, but this argument did not take into account the absolute necessity of relieving intense dyspnœa and tachycardia, or of the interstitial fibrosis which frequently followed very slow absorption. He showed X rays illustrating this fibrosis.

As regards aspiration he stressed the following points. The fluid was an incidental complicating factor; the lung was all important. Chests varied, so that fixed quantities of fluid bore different relationships to the total capacity and exercised different pressures. The method employed should involve no danger or distress to the patient or risk of spread of the lesion in the lung. If possible the chest should be emptied completely. He described his method of aspiration with gas replacement. The volume of gas necessary to maintain a constant pressure was approximately two-thirds of the fluid withdrawn. In tuberculous serous effusion he used air replacement owing to its slow absorption. In purulent effusions he used oxygen or carbon dioxide, as rapid absorption and obliteration of the pleural cavity were indicated. At one time he had thought it possible to deal with most streptococcal or pneumococcal effusions by lavage, aspiration, and oxygen replacement alone, but the influenza epidemic of last winter proved that the method was sometimes insufficient, though it was the best preliminary treatment for all empyemas.

Dr. **L. S. T. BURRELL** (London) submitted a communication on

THE DIAGNOSIS AND TREATMENT OF BRONCHIECTASIS

The chief points in the diagnosis of bronchiectasis were: (1) the cough with sputum, often copious and offensive; (2) fever, sometimes relapsing, the sputum accumulating in the cavity causing pyrexia and toxicity; (3) hæmoptysis—common and frequently large in quantity; (4) the disease generally affected the lower portion of the lungs; (5) physical signs of cavity at the base strongly suggested bronchiectasis; (6) clubbing of fingers; (7) absence of tubercle bacilli (although the two diseases might occur together); (8) radiography after injecting lipiodol. Dr. Burrell divided the treatment into simple medical, simple special, and major special treatments. Artificial pneumothorax was rarely successful owing to adherent pleura and the failure of the cavities to collapse. Bronchoscopic aspiration gave relief but did not effect a cure; it was most useful in bilateral toxic forms. Phrenic evulsion might do harm by diminishing the force of the cough. Thoracoplasty was often disappointing. The operation of choice, where the signs were unilateral and the case severe and very distressing, was lobectomy. Under modern methods it could be performed by ligature and excision, and the mortality had been reduced to under 10 per cent.

SECTION OF SURGERY

IN this section on July 26th, with Prof. C. J. MACAULEY (Dublin) in the chair, a discussion on the treatment of

Acute Head Injuries

was opened by Mr. **GEOFFREY JEFFERSON** (Manchester). At the present time, he said, the treatment of head injuries was chiefly non-operative. The worst cases were not saved by routine decompression, and it was generally believed that the use of hypertonic solutions would lower pressure and replace operation in most cases. He believed that hypertonic solutions should not be indiscriminately applied, though he admitted their value if properly used. It would be better to regard every patient with a head injury as being a potential subject for operation, and to be ready to suspect not only epidural hæmorrhage but the commoner and more insidious condition of subdural hæmatoma. Among a total of 1004 patients with head injury seen at the Manchester Royal Infirmary and Salford Royal Hospital 230 died (23 per cent.). Of these, 91 (60 per cent. of the total number of deaths) died within 24 hours, and the next highest number before the end of 48 hours. Among the late deaths, those occurring after the second or third day, subdural hæmatomas were found at post-mortem more often than they had been suspected during life. Some late deaths, however, appeared to be due, not to gross compression, but possibly to damage to centres and tract connexions by hæmorrhage, œdema, or necrosis in which histamine might play a part. Thermal crises indicated damage to the tuberal region. The great variations in behaviour of patients during recovery were probably evidences of injury to particular regions, and called for further study.

The outstanding problem in cases of head injury was traumatic stupor. Immediate anxiety was almost at an end when consciousness was regained. Patients arrived at hospital in all stages of traumatic stupor, and fell conveniently into three groups. Group A included those who were deeply unconscious or comatose, with dilated pupils, cyanosis, stertor, and flaccid limbs. These patients died rapidly, and nothing would save them. Group B comprised those patients who were recovering consciousness when they reached hospital. They could be induced to answer questions, and often did not relapse again into unconsciousness. Fractures of the skull, however, or laceration of the brain, might be present in patients falling into this group, and extra- or sub-dural hæmatoma might arise. Some of them relapsed again into unconsciousness or stupor, and it was extremely important to determine the depth of the secondary stupor and the presence or absence of localising signs. If stupor was light and no limb weaknesses could be discovered, no clot was likely to be present, but if there was the least doubt it was better to explore. Group C, consisted of patients who remained in a non-coöperative semi-stuporose condition for several days. Evidence of a unilateral lesion might be found in facial asymmetry and by examination of the abdominal and plantar reflexes. A number of these patients in whom no lateralising signs were found slowly recovered.

Patients who remained unconscious for any length of time might be assumed to have suffered severe neural damage, and even those who recovered consciousness in a few moments might have contusions which would give rise to dangerous subdural hæmorrhage. The sequence of stupor, recovery, and stupor implied the production of unconsciousness by clot. It was questionable whether the loss of consciousness was due to pressure; intracranial tumours causing great rise of pressure seldom produced unconsciousness, nor did the pressure readings of the cerebrospinal fluid in cases of head injury bear out the teaching that stupor was due to pressure. He believed that it was usually due to contusion of the anterior parts of the hemispheres, and the restlessness and "sham rage" of some patients recalled the animal experiments in which a similar condition was produced by lesions of the frontal lobes. Left-sided frontal or temporal contusion with aphasia was very important. The patient had the air of understanding what was said but could make no reply. Failure to recognise this localising sign might cost the patient his life. The use of hypertonic solutions to restore consciousness, therefore, was not rational. The patient was unconscious because his brain was damaged generally, not because it was œdematous, and the effect of hypertonic salines was to raise the blood pressure, and, by shrinking the brain, increase the space into which hæmorrhage could occur. They were best withheld for the first day or so, and only used when manometric readings showed an increase in pressure in the cerebro-spinal fluid. They were useful in secondary œdema, arising after the second or third day. The basic state in head injury was one of generalised trauma, producing stupor; unless some new element was added, the patient would recover. Such new elements imposed on the original state he had called epiphenomena.

The classical picture of middle meningeal hæmorrhage was well known. Owing to the enforcement of the Coroners Act autopsies were no longer performed as a routine in fatal injuries and were harder to obtain than formerly. He believed this had had an unfavourable influence on the treatment of head injuries, for a missed middle meningeal hæmorrhage was no longer revealed and a salutary lesson was lost. In his series fracture was absent in five out of nine cases of subdural hæmatoma, which was important when comparing them with extradural hæmorrhage, where fracture was the rule. He considered that if there was the least sign of contralateral limb weakness or a Hutchinsonian pupil, the indication for exploration was absolute. The pulse-rate was a reliable sign of clot compression, provided the rest of the picture fitted in with the diagnosis, but was not an indication for operation taken alone.

Mr. HUGH CAIRNS (London) said that recent work seemed to indicate that traumatic stupor was due to a diffuse disruption of the neural elements in the brain. Until the patient became orientated again he should be regarded as suffering from the effects of traumatic stupor, a state in which operation could do nothing and the injection of hypertonic solution was rarely called for. The patient should be treated with rest and good nursing. To control delirium morphia could be given freely, provided that he was allowed to recover from one dose before the next was administered. He was not sure that it was always wise to follow the plan suggested by Mr. Jefferson and explore whenever a clot was suspected. He had operated in a few cases of the kind, and thought that it had sometimes turned the scale against the patient. Usually such patients were too restless for the operation to be performed under local anæsthesia, and had to be given ether, which was not good for an injured brain and might give rise to pneumonia. He believed that clinical concussion was really a mild degree of traumatic stupor. Among the epiphenomena must be included infection which was a common cause of death five or six days after a head injury; evidence of the onset would be found in the cerebro-spinal fluid. The position of the clot, he thought, was less important than the rate at which it increased in size—a rate which far exceeded that of a growing cerebral tumour. Intracranial ærocele was a complication which sometimes followed a head-on collision; it arose as a result of fracture of the frontal sinus and tearing of the dura, and was probably more common than had been supposed. Operation was essential, and the tear in the dura must be stitched or covered by a strip of fascia lata to seal it. Most of the other cases of head injury, he thought, did not call for operation, but the whole subject needed careful clinical and pathological study.

Mr. A. A. MCCONNELL (Dublin) described several cases of head injury, most of them illustrating diagnostic pitfalls. The first, however, was the case of a patient who showed extreme restlessness without localising signs, following a fall from horse. He was disorientated and had to be held in bed, but when released, got out and found and used the urinal, showing that he was able to carry out a purposive action although in a state of traumatic stupor. Another case was that of a boy who developed paresis of the right arm and leg following a kick on the head by a horse. The symptoms progressed and a diagnosis of pontine tumour was made which was verified at autopsy. In another case headache and papillœdema developed following a fall; post mortem a subdural hæmatoma was found—and also a cerebral tumour. Another boy fell off the runningboard of a car, vomited, developed a headache, and became drowsy. Later he was aphasic and finally became comatose with head retraction and spasms. At operation a cerebral hæmangioma was found, nothing was done and he made a complete recovery. These cases suggested that the possibility of a pre-existing lesion should be kept in mind in cases of head injury.

Prof. H. S. MEADE (Dublin) said that in his experience cases with a bad fracture and torn dura did well as a rule, while the patient with hardly any symptoms was quite likely to die. He thought it possible that the leak through the torn dura helped the patient at the outset. A rapid pulse, slowing rapidly following the injury, was an unfavourable sign; if the pulse was slow from the outset the prognosis was better. He agreed that dehydration was undesirable, and wondered whether, in cases of hæmorrhage where the brain failed to expand following the removal of clot, it might be worth while giving *hypo*tonic solutions to increase the brain volume. Patients with head injuries travelled fairly well, and he thought it was important to get them to a place where they were used to dealing with such cases, even if it meant a journey. Was it necessary to keep a patient quiet after recovery from a head injury? He found that active men, who were not out for compensation but were anxious to get back to hunting or other sports, refused to rest, and never came back complaining of headaches and dizziness. Patients who hoped for compensation were the ones who came back. He advised his hearers never to ask their patients whether they had a headache; if they had one they would soon say so. Intravenous anæsthetics, he suggested, might be useful for operation on head injuries. He had found that it was simpler to use the outer layer of the dura to close a dural tear than to put in a piece of fascia lata.

Prof. R. E. KELLY (Liverpool) remarked that in stuporose cases it was often unnecessary to use an anæsthetic at all.

Mr. A. J. WALTON (London) said that the site of the damage was of little importance compared with the rate of onset. A blow upon a peripheral nerve caused a sudden loss of function, while a slow growing tumour might compress it without causing any such loss. The same was true of the brain; a large tumour of the frontal region might exist without giving rise to any pressure symptoms. He preferred to call the results of acute injury concussion, for what else were they? The patient might be unconscious for a few seconds or for days, or might pass into coma and die. These were increasing degrees of a condition which, whatever its underlying nature, was due to immediate trauma; and therefore no operation should be undertaken unless some evidence of local disturbance arose.

Mr. R. A. STONEY (Dublin) said that in his young days the fashion had been to operate immediately upon the "acute head," and this was frequently followed by fatal results. He had reached the conclusion that as long as the symptoms were general there was nothing to be gained by operation, and when teaching in hospital he was accustomed to say: "As long as the pupils are equal and reacting to light, leave the patient alone. If they become unequal and one ceases to react, consider operation."

Sir FRANK CONNOR (Bombay) said that patients might respond differently to head injury owing to some pre-existing condition such as alcoholism. In the tropics a head injury often precipitated an attack of malaria which influenced the course of the condition unfavourably.

The CHAIRMAN said that it was important to realise that a patient might have a fractured skull without dying; the contents were more important than the bony case.

In replying, Mr. JEFFERSON begged that no one would think he was trying to bring back the "acute head." Operation for stupor alone was unjustified and wrong, and so was the injection of hypertonic saline.

MEDICINE AND THE LAW

Grave Charges Dismissed

ALLEGATIONS of unusual gravity, made against a medical practitioner, were dismissed by a bench of magistrates in one of the eastern counties last week. They concerned the doctor's relations with one of his panel patients, a domestic servant whom he was treating for housemaid's knee. The girl said that he asked her to meet him in the evening and to go for a drive in his car. Misconduct was said to have occurred on this occasion and again at his surgery next day. She said she subsequently told him she thought she was pregnant, whereupon he gave her a prescription on a national health insurance form which, according to the prosecution, contained drugs reputed to be abortifacient. The girl was said to have taken the mixture for three days without result. She alleged that she told this to the doctor who then said it might be necessary to perform an operation. She said he told her to visit a woman at an address which he gave her. The woman was "one who has done it before" and would ask no questions. One of the charges against the doctor was that of conspiring with this woman to procure abortion by administering a noxious thing; three other charges alleged that he himself unlawfully administered noxious things with intent to procure abortion. The prosecution withdrew the charge against the woman who gave evidence for the Crown. The woman's evidence was to the effect that the doctor asked her to let the girl come to her house where a certain drug was administered. The woman said she did this out of affection for the doctor; he had attended her professionally but had also been intimate with her. Both the girl and the woman were severely cross-examined as to their character, and the defence naturally stressed the fact that their evidence, being that of accomplices, was untrustworthy. The police found the girl at the woman's house of which the contents were described. The doctor, in a statement to the police, admitted having attended the girl for housemaid's knee and also for bruising and shock when she had fallen from an omnibus. He denied the allegations and said it was a case of blackmail. Before calling him as a witness, the doctor's legal representative addressed the court upon the discrepancies in the evidence and the need of corroboration. The magistrates subsequently announced that there was not enough independent evidence on which a jury would be likely to convict, and therefore they did not commit the case for trial.

The risk of relying mainly upon the testimony of accomplices is a matter to which the jury's attention is always directed. The late Mr. Justice

McCardie used to favour the defence in these cases by persuading accomplices not to give evidence for fear of incriminating themselves. Some of his colleagues, well aware of the difficulty of securing the necessary evidence for enforcing the law, took a different view. Thus English judges have illustrated the uncertainty of the law in its attitude towards the offence of criminal abortion to which the recent discussions at Dublin referred. Magistrates of course ought not to send cases for trial if it is unlikely that a jury will convict. This duty of magistrates has now become more urgent since Parliament has lately abolished the safeguard of the grand jury.

INDUSTRIAL DISEASE IN 1932

THE bulk of this year's annual report of the chief inspector of factories and workshops[1] is taken up by historical surveys noticed on another page.

The range of the departmental activities during 1932 is apparent from the fact that at the end of the year there were 157,891 factories and 90,859 workshops on the registers of the department, being an increase of 2537 factories and a decrease of 4855 workshops. The complaints received during the year numbered 3916, of which 667 dealt with matters outside the inspectors' jurisdiction. Of the remaining 2203, 1713 (nearly 78 per cent.) were substantiated on inquiry. It is noted that genuine complaints often enable inspectors to detect and rectify irregularities; the source of a complaint, or even the fact that a complaint has been made, is never disclosed to the occupier concerned. The total number of accidents reported again shows a decrease from 113,249 to 106,164 and the fatalities from 755 to 602, the decrease being attributed mainly to the continued depression of certain industries but partly to the growth of the Safety First movement. The progress made in effecting compliance with the regulations in regard to dangerous occupations such as work on asbestos, building construction, chromium-plating, cinematograph films, potteries, refractory materials, and the generation and use of electricity appears to have been satisfactory.

HEALTH CONDITIONS

The usual detailed report of the senior medical inspector, Dr. J. C. Bridge, is replaced by a short section which, however, contains matter of great interest, notably the occurrence of groups of cases of cancer of the interior of the nose and of the bladder, and a comparison of the dangers of silicosis and asbestosis after certain periods of exposure.

The number of cases of *lead poisoning* has increased by 14 from those recorded last year. This is wholly attributable to an increase in shipbreaking, which accounted for 34 cases; the number of cases caused by lead paint in the painting of buildings is 43 as compared with 64.

There were 16 cases of *anthrax*, with 1 death; from wool 11 cases (including 1 death), horsehair 2 cases, hides and skins 2 cases, and other industries 1 case. These are the lowest recorded figures for this disease in any year.

Cancer.—131 cases with 44 deaths were reported from epitheliomatous ulceration of the skin; 33 with 1 death from pitch; 37 with 18 deaths from tar; 1 from paraffin; 60 with 25 deaths from oil. Of these 60 cases from oil, 57 occurred among cotton mule spinners.

The occurrence during the past 11 years of 10 cases (9 fatal) of *cancer of the interior of the nose* amongst workers at the works of a nickel refining company was brought to the notice of the department. Inquiry was made into the occupational history of each of the workmen affected and a pathological examination of all the specimens available was undertaken by Prof. E. H. Kettle. At visits to the works nothing was disclosed to indicate any known cause to account for these cases, but the firm asked Mr. C. P. Robinson, aural surgeon to the Swansea General Hospital, to undertake a complete examination of a group of workers. His examination did not reveal any further case or any condition which would indicate a causative agent. The examination of all the workers is now being undertaken by the works surgeon. Until this examination is complete the question of industrial responsibility must remain an open one, though the very high incidence of cancer in a little recorded site is regarded as suggestive. Great improvements have been effected in the conditions of the works by the provision of modern calciners during a temporary closure; these were contemplated before the occurrence of these cases was brought to light. Fifty-three cases of death from *papilloma* and *cancer of the bladder* in Huddersfield from 1900 to 1932 have been investigated with special reference to the working history of the victims. The data so far obtained is not sufficient to determine ætiology. It is regarded as significant that of the 53 cases 28 are found among intermediate dye workers, while not more than two cases at most occurred in any other trade group over the same period.

The number of cases of *chrome ulceration* (77) shows a slight increase, that of cases of *aniline poisoning* (24) a decrease due mainly to improved conditions in the works from which a number of cases occurred in 1931. One very severe case of anilism was due to spraying the woodwork of a living room with a mixture containing dinitro-benzol, the windows being closed. Included in the cases of aniline poisoning are five due to 5-chlor-ortho toluidine. The prominent symptoms of this form of poisoning being strangury and hæmaturia, the suggestion arises of its possible association with cancer of the bladder among chemical workers.

The number of *gassing* accidents reported was 125, of which 11 proved fatal.

Dermatitis of industrial origin.—It is held to be surprising that employers in general do not make better provision for washing accommodation with hot and cold water, and for ensuring that proper use is made of the provision. This condition appears to continue at the same rate and from the same causes as in previous years, but a greater number of cases, however, are being brought to the notice of the medical inspectors.

Silicosis and asbestosis.—Full particulars are now available of 42 deaths from asbestosis or asbestosis with tuberculosis and 281 deaths from silicosis or silicosis with tuberculosis. All have been verified by post-mortem examination. It is noteworthy that:—

(1) The average duration of employment sufficient to cause a fatal degree of asbestosis was only 15·2 years as compared with 40·1 years for all cases of silicosis. The actual average length of exposure to asbestos dust was, however, still less, and not more than 13·3 years.

(2) The shortest length of exposure to asbestos dust which ultimately caused death from advanced fibrosis of the lungs was 4·4 years.

(3) Asbestosis is comparable with the more serious silicosis risks with respect to length of exposure which will cause a fatal degree of fibrosis.

The incidence of silicosis among *sandblasters* and the very short duration of employment in this occupation before total disablement and death occurs are matters falling for urgent consideration. An increasing number of firms have adopted a non-siliceous abrasive, and there seems no reason why the use of sand should not be confined to work that can be done automatically and in enclosed machines. No helmet affords sufficient protection from the fine dust generated.

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[1] Cmd. 4377. H.M. Stationery Office. 1933. Pp. 134. 2s.

INVESTIGATIONS

Trichlorethylene has recently come into very extended use following the introduction of many different kinds of plant for cleaning clothes, and for degreasing. A few cases of partial anæsthesia have occurred under abnormal circumstances, but no sign of chronic intoxication has been observed in this country where ventilation is apparently better than in cleaning works on the continent. *Carbon tetrachloride* used in much the same way does not seem to have had adverse effects on persons employed in the work; the filling of capsules with carbon tetrachloride, without exhaust, has been observed to produce headache and nausea. Attention is drawn to two cases of toxic jaundice from *arseniuretted hydrogen* evolved from wetting dross containing aluminium arsenide reported in The Lancet (1932, ii., 1446), which are regarded as important because of the unsuspected evolution of arseniuretted hydrogen. Special measures of protection have been called for in connexion with a new process of spraying *asbestos fibre*, together with an adhesive, to the walls of a railway tunnel, and to the coating of the inside of the bodies of motor-cars. The clinical picture of bronchitis, peribronchial fibrosis, and emphysema occurring in maltmen exposed to various kinds of *dust* is not distinguishable from a similar condition which may be met with in the absence of an industrial hazard, and the precise mode of action of the offending dust is uncertain, but the dusty conditions call for improvement. Radiographic examination of a few selected workers exposed to the *dust of basic slag and talc* indicates a fibrosis in a varying degree. The absence of signs of *manganese poisoning* in 24 works where dry batteries are manufactured is gratifying, since in Germany several cases of poisoning in works of this character have occurred. In the weighing and mixing departments there is undeniable exposure to the dust of manganese dioxide, and adequate washing accommodation is an obvious need in this industry, but was not found always provided. Inquiry into the effects on health of exposure to *cellulose lacquers* has revealed little ill-health. This is attributed to vigilance in maintaining good ventilation and a reasonable temperature. A large amount of information is being collected on *industrial pulmonary disease*, which when correlated with research undertaken in various centres is expected to prove of considerable scientific value.

PARIS

(FROM OUR OWN CORRESPONDENT)

THE FRENCH SPAS

About half a million persons depend for their living on the thermal springs and hydropathic establishments of which France is justifiably proud, and the institutions are visited yearly by another half million. This activity is, accordingly, of importance from many points of view, and it is natural that the persons most directly concerned should meet from time to time to discuss the problems nearest to their hearts. The sixth congress of French watering places, held last May in Paris, gave an opening for a lively discussion on publicity, finance, and other pivotal subjects. According to one speaker, Dr. Mothe, only about 15 per cent. of the patients who take the waters in France come from abroad. The thermal and climatic riches of France being, in his opinion, by far the most important in the world, this ratio of only 15 per cent. suggests that foreigners are not adequately enlightened about them. In the course of 13 years the Office National du Tourisme has spent approximately 25 million francs in propaganda on behalf of this national activity—a sum which, in Dr. Mothe's opinion, showed that the office was more tourist-minded than thermally-minded. Dr. Mothe would like to see the office reorganised in such a way that propaganda at home and abroad, among the public and the medical profession, could be more effectively centralised than it is at present.

BAD DEBTS

The *Concours Médical* lately contained some correspondence about the patient who fails to pay his doctor, though unable to plead poverty. It begins with a letter from a practitioner in a small community where there are three doctors and three chemists. Bills in arrears, it is proposed, are to be handed over by these six persons to a professional debt collector, whose remuneration will consist of a certain proportion of the sums he succeeds in collecting. It is anticipated that other doctors and chemists in the neighbourhood will join in this undertaking. So far, so good. But now comes the point on which the writer is a trifle uneasy. May he and his companions, he writes, get their collector to keep a black list of non-payers, with their addresses, for future reference? One of the legal advisers of the *Concours Médical*, Dr. Paul Boudin, answers this letter in a memorandum which shows how warily the French practitioner must walk in such matters. In principle there is nothing to prevent a doctor from farming out his bad debts to a professional collector. But the bills must not be so worded as to give any indication of the nature of the disease for whose treatment payment is demanded. The bill must, therefore, be so worded that it is an open book to the patient and an enigma to the collector. If the bill is drawn up in such a way that the patient can claim that professional secrecy has been violated, the patient would be in a position to ask for a reduction or total cancellation of the account. The keeping of a black list is legitimate, but only under certain carefully defined conditions. No objection can be raised to doctors giving each other confidential information as to the financial morals of certain patients. But this information must not be communicated to a third party nor exploited so as to become the means of a general medical boycott of the patient. If a doctor is summoned to a black-list patient, not acutely ill, the doctor is perfectly in his rights in not answering the call, but he would be unwise to say: "You are on the black list, and I will not come to see you." For however much the patient may have offended in the matter of paying his doctors, they are not entitled to conspire against him so as to deprive him of all medical aid. This, at least, is the legal ruling of a case decided in 1909. The doctor summoned to a patient on the black list may, on the other hand, insist on cash payment, the refusal of which would be a valid reason for declining to give any treatment. But the doctor must not say: "I refuse to treat you because you have not paid Dr. X." Dr. Boudin also advises compilation of a black list by word of mouth—an arrangement which would not prevent each doctor from making his own written list of black sheep.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE CONTROL OF BOVINE TUBERCULOSIS

THE report of the Hannah Dairy Research Institute at Kirkhill, Ayrshire, contains some rather disconcerting facts about the spread of tuberculosis. Their investigation has been conducted in concert with the Department of Health for Scotland and the public health departments of Edinburgh, Glasgow, Dundee, and Aberdeen—all under the financial adjustment of the Medical Research Council. When the full report is ready it will be interesting reading. The unsatisfactory nature of the existing milk-supply is emphasised; "bulking" is found to have a profound effect in increasing the percentage infection of milk, and there is an urgent need for the proper control of methods of commercial pasteurisation if this process is used for reducing infection. The report emphasises the outstanding value of maintaining tuberculin-tested herds as a means of safeguarding the milk supply. It was found that 20 out of 28 herds that adopted the suggested eradication method were free from infection after three years' testing; the number of reactors in the remaining eight herds was reduced from an average of 50 per cent. to an average of 24 per cent. In two other herds included in the scheme, in which, however, no proper precautions were taken to limit the spread of infection, the proportion of reactors increased from 42 per cent. to 58 per cent. As to pasteurisation, the report holds that, while the nutritive value of raw milk may be slightly impaired, the deficiency may be made good by the addition of small quantities of vitamin concentrates.

A HOSPITAL'S APPEAL

The Edinburgh Royal Infirmary appeal was for £500,000; but the time was unfortunate. The objects in view were the purchase of the site of George Watson's Boys' College; the provision of a combined maternity and gynæcological hospital of 240 beds; the reduction of the waiting-list and the erection of a new nurses' home along with accommodation for the domestic staff. The Royal Infirmary contains to-day over 1000 beds. The new extensions were urgently required, and the arrangement with the Simpson Memorial Hospital promised to be the groundwork of a strong maternity and gynæcological unit. But the appeal has brought forth only about £260,000. Possibly the sum will reach £300,000. But, in view of all the circumstances, the managers now propose to provide only a maternity hospital of 122 beds (instead of 240 beds as first suggested) and to erect the new nurses' home. Some new beds must be postponed; but an auxiliary institution accommodating 36 patients requiring special treatment has already been opened at Murrayfield and has set free the corresponding number of beds at the infirmary. When the new pavilion for dermatological and venereal diseases is erected, 40 additional beds in the present surgical department will become vacant. It is understood that the managers, in order to reduce their waiting-list, are considering sympathetically coöperation between the infirmary, the municipal hospitals, and the county hospitals in the south-eastern area of Scotland. The relative failure to collect a sufficient sum for the whole programme must be taken as an indication that the community is looking towards the new municipal developments as essential parts in the hospital extensions of the ensuing generation. It would be disastrous to see the municipal institutions and voluntary institutions run not as parts of an organic whole, but as rival concerns. The long waiting-list will ultimately compel a better administrative integration.

LONDON COUNTY COUNCIL
LIST OF CONSULTANTS

THE list of consultants who have now been appointed to the various units and groups of L.C.C. hospitals is set out below. It will be seen from the table that a large number of the appointments are for one session weekly.

In order to show the important liaisons which these appointments bring in their train, we have noted in brackets after the name of each consultant or in a separate column of the Tables the principal voluntary hospitals to which he is attached as a member of the honorary staff. These lists understate the liaisons effected, for the non-permanent teaching posts at medical schools—for example, as assistant to a professional unit—held by several of the junior consultants are not included. The staff appointments have mostly been taken from the Medical Directory, 1933, which was issued more than six months ago, and may therefore not all be up to date; for reasons of space only one degree or qualification has been set out.

It will be seen that members of the staff of all the teaching hospitals and most of the London general and special voluntary hospitals are represented.

Special Hospitals or Units

Berkeley, Comyns, F.R.C.P. (Middlesex, cons.).
Gynæcologist, radium centre, North-Western.

Dixon, P. D. (Miss), M.B. (Mrs. C. E. Wise).
Obstetrician, Sheffield-street.

Wyatt, J. M., F.R.C.S. (St. Thomas's; Grosvenor).
Obstetrician, North-Western.

Layton, T. B., M.S. (Guy's).
Otologist, fever hospitals.

Hall, D. W. (Miss), F.R.C.S. (E. Garrett Anderson), and
Cann, R. J., M.S. (Evelina).
Asst. otologists, fever hospitals.

Mayou, M. S., F.R.C.S. (Bolingbroke; Cent. Lond. Ophth.).
Ophthalmologist, St. Margaret's and White Oak.

MacLeod, J.M.H., F.R.C.P.(Char. X.; cons.: St. John's Skin).
Dermatologist, Goldie Leigh and other hospitals.

Shanks, S. G., M.D. (P. of Wales Gen. Hosp., Tottenham).
Radiologist, Goldie Leigh.

Nabarro, D. N., F.R.C.P. (H. Sick Childr.; Lond. Jewish).
Physician for congenital syphilis, St. Margaret's.

Trethowan, W. H., F.R.C.S. (Guy's; Roy. Nat. Orthop.).
Orthopædist, Queen Mary's Hosp. Childr., and VII.

Brittain, H. A., M.Chir.
Surgeon, St. Luke's, Lowestoft.

Stevenson, R. Scott, F.R.C.S. Edin. (Metropolitan), and
Griffiths, J. I., F.R.C.S. (Queen Mary's, Stratford).
Ear, nose, and throat surgs., med. tuberc. hospitals.

Gillies, Sir Harold, F.R.C.S. (St. Bart.'s).
Hon. chief surg., plastic surg. unit, Hammersmith.

Kilner, T. P., F.R.C.S. (H. Trop. Dis.; East Lond. Childr.).
Plastic surgeon, plastic surg. unit, Hammersmith.

McIndoe, A. H., M.S. (Hosp. for Trop. Diseases).
Asst. plastic surg., plastic surg. unit, Hammersmith.

Kerridge, A. R. (Miss), M.R.C.S. (P. of Wales, Tottenham; Bolingbroke),
Lewis, I. N., M.R.C.S. (St. George's; Metropolitan),
Machray, Robert, M.B. (Westminster),
Magill, I. W., M.B. (Westminster; Brompton), and
Rait-Smith, Brian, M.R.C.S.
Anæsthetists for plastic surg. unit, Hammersmith.

Brock, R. C., F.R.C.S.,
Edwards, A. Tudor, M.Chir. (Westminster; Brompton),
Nelson, H. P., F.R.C.S.,
O'Shaughnessy, L. F., F.R.C.S., and
Roberts, J. E. H., F.R.C.S. (St. Bart.'s; Brompton),
Thoracic surgs., med. tuberc. hosps., and St. James', &c.

HARKNESS, A. H., M.R.C.S. (St. Peter's).
Venereal diseases specialist, St. Charles'.
NICOL, HAMISH. F.R.C.S. Edin.
Venereal diseases specialist. St. Stephen's.

The following lists show appointments to the various groups of hospitals (I–VII). The roman figures indicate the group and the small figures following them—e.g., VI^{4}—show the hospital or hospitals to which the specialist will normally be allocated. These hospitals are :—

GROUP I
1. St. Charles'.
2. Hammersmith.
3. Paddington.

GROUP II
1. St. Luke's. Chelsea.
2. St. Stephen's.
3. Fulham.
4. St. Mary Abbot's.

GROUP III
1. St. Pancras.
2. St Mary. Islington.
3. New End.
4. Highgate.
5. Archway.

GROUP IV
1. St. George-in-the-East.
2. St. Peter's.
3. Mile End.
4. St. Andrew's.

GROUP V
1. Hackney.
2. Bethnal Green.
3. St. Leonard's.

GROUP VI
1. St. Olave's.
2. Lewisham.
3. St. Alfege's.
4. St. Nicholas.

GROUP VII
1. Dulwich.
2. St. Giles'.
3. Lambeth.
4. St. James'.
5. The Downs Hosp. for Children.
6. Norwood Hosp. for Children.
7. Queen Mary's Hosp. for Children, Carshalton.

Thus the figures IV$^{1\,3}$ mean that the allocation is to St. George-in-the-East and Mile End Hospitals, both of these being in Group IV. Where the group number alone is given, the allocation is to the whole group.

Dermatologists

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BAMBER, G. W., M.D.	Miller : Vict. Childr.	III	2
BRAIN, R. T., M.D.	Evelina.	IV	2
DRAKE, J. A., F.R.C.P.	King's College.	VII$^{1\,2}$	1
FORMAN, LOUIS, M.D.	Guy's ; Lond. Jewish.	VI	2
FRESHWATER, D. H., M.D.	St. George's.	II$^{1\,2}$	1
O'DONOVAN, W. J., M.D.	London ; St. Paul's.	VII$^{3\,4}$	1
SCOVELL, J. (MISS), M.D.	London Skin.	V	1
THOMSON, M. S., F.R.C.P.	King's Coll. : Belgrave.	II$^{3\,4}$	1
WIGLEY, J. E. M., M.B.	Char. X.; St. John'sSkin	I	1

Ear, Nose, and Throat

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
CAPPS, F. C. W., F.R.C.S.	St. Bart.'s.	V^{1}	1
CAWTHORNE, T. E., F.R.C.S.	King's Coll. : Cheyne.	VII$^{1\,2}$	1
COLLIER, D. J. (MISS), F.R.C.S.	South London.	VI^{1}	1
JENKINS, G. J., F.R.C.S.	King's College.	I^{1}	1
		VII^{3}	1
JORY, N. A., F.R.C.S.	Royal North.	V$^{2\,3}$	1
MASON, F. C., M.S.	Seamen's.	VI$^{2\,3\,4}$	2
McLAGGAN, J. D., F.R.C.S.	R. Free; C. Lond. Thr.	IV	2
MILL, W. A., M.S.	St. Thos.; C. Lond. Thr.	II	2
PETERS, E. A., F.R.C.S.	Univ. Coll. ; Boling.	VII^{4}	1
ROBERTSON, G.D., F.R.C.S.	St. Mary's.	I$^{2\,3}$	1
RYLAND, A., F.R.C.S. ED.	Centr. Lond. Throat.	III	2

Obstetricians and Gynæcologists

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BASDEN, M. M. (MISS), F.R.C.S.	S. Lond. ; Marie Curie.	III	1
BROWN, R. CHRISTIE. M.S.	Samar. ; C. of L. Mat.	IV$^{1\,2}$	1
ELLISON, J., F.R.C.S. ED.	Chelsea H. Women.	VI$^{3\,4}$	1
FORSDIKE, SIDNEY, F.R.C.S	H. Women, Soho.	II$^{1\,2}$	1
GRAY, A. O., F.R.C.P.	Charing X. ; Hamps.	I$^{1\,2}$	1
McALLISTER, A. C., F.R.C.S.	Samar. ; R. Waterloo	IV$^{3\,4}$	1
McCULLAGH, W. McK., F.R.C.S.	Samar. ; Metrop.	V^{1}	1
OLDERSHAW, M. H., F.R.C.S.	H. for Women, Soho.	VII$^{1\,2}$	1
PHILLIPS, L. G., M.S.	H. Wom., Soho;Q.Charl.	VII^{4}	1
ROY, D. W., F.R.C.S.	St. George's ; Samar.	VI$^{1\,2}$	1
THEOBALD, G. W., M.D.		II^{4}	1
WALKER, A. L., F.R.C.S.	C. of L. Mat. ; Miller.	VII^{3}	1
WHITE, NORMAN, F.R.C.S.		V$^{2\,3}$	1
WILLIAMS, LESLIE, M.S.	St. Mary's : Qu. Charl.	I^{3}	1
		II^{3}	1

Ophthalmologists

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BICKERTON, J. M., F.R.C.S.	King's Coll. : Roy. Eye.	VI$^{1\,2}$	1
CARDELL, J. D. M., F.R.C.S.	Cent. Lond. Ophth.	II$^{3\,4}$	1
JEREMY, H. R., F.R.C.S.	London.	IV	2
JOSEPH. H. M., M.B.	Miller.	III$^{1\,2}$	1
LETCHWORTH, T. W., F.R.C.S	Hampstead ; Roy. Eye.	V	2
LINDSAY, W. J., M.D.		VII$^{1\,2\,4\,5}$	2
MARSHALL. J. C., F.R.C.S.	West. Ophthal.	VII^{3}	1
PENMAN, G. G., F.R.C.S.	R.North.;R.Westm.Oph	III$^{3\,4\,5}$	1
RIDLEY, F. T., F.R.C.S.	Cent. Lond. Ophth.	I$^{2\,3}$	1
RYLEY, C. M., B.CHIR.	Miller : St. John's.	VI$^{3\,4}$	1
SORSBY, ARNOLD, F.R.C.S.	Hampstead: Roy. Eye.	VII^{4}	1
TAGGART, H. J., F.R.C.S.	West. Ophthal.	II$^{1\,2}$	1
WHITTINGTON, T. H., M.D.	Royal Waterloo.	VII^{6}	1
WOLFF, EUGENE. F.R.C.S.	Royal North.; Seamen's.	I^{1}	1

Orthopædists

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BURNS. B. H., F.R.C.S.	St. George's ; Belgrave	IV$^{1\,2}$	1
BURROWS, H. J., F.R.C.S.	Miller.	V	1
DAVIS, K. J. A., F.R.C.S.	Metrop.: E. Lond. H.Ch.	VII$^{2\,3}$	1
ELLIS, V. H., F.R.C.S.	St. Mary's; R.Nat.Orth.	IV$^{3\,4}$	1
LAMBRINUDI, C., F.R.C.S.	Guy's.	VI$^{3\,4}$	1
LINDSAY, E. A., F.R.C.S.	Miller.	VI$^{1\,2}$	1
LLOYD, E. I., F.R.C.S.	R. North.; H. Sick Ch.	I	1
PATON, R. Y., F.R.C.S.	P. Louise; R. Nat. Orth.	III	1
ROCYN-JONES, A., F.R.C.S.	R. Nat. Orth.	II$^{3\,4}$	1
SINCLAIR, MEURICE, M.B.	–	II$^{1\,2}$	1
		VII$^{1\,4}$	1
TRETHOWAN, W. H., F.R.C.S.	Guys ; R. Nat. Orth.	VII^{6}	1

Pædiatrists

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
COCKAYNE, E. A., F.R.C.P.	Mid'x. ; H. Sick Ch.	III$^{4\,5}$	1
COPEMAN, W. S. C., M.R.C.P.	SS. John and Eliz.	III$^{2\,3}$	1
HAMILTON, C. K., F.R.C.P.	Charing X.	I	1
HARRIS, C. F., F.R.C.P.	St. Bart.'s.	V	1
LIGHTWOOD, R. C., M.D.		VII$^{3\,5}$	1
OWEN, S. A., F.R.C.P.	W. Lond. ; Q. H. Ch.	IV$^{1\,2}$	1
SCHLESINGER, B. E., M.D.	R. North.; H. Sick Ch.	VI$^{1\,2}$	1
SHELDON, W. P. H., F.R.C.P.	King's Coll. ; Cheyne.	VII$^{1\,2}$	1
SLOT, GERALD, M.D.	Royal Waterloo.	VI$^{3\,4}$	1
SMITH, E. BELLINGHAM, F.R.C.P.	St. George's.	II$^{3\,4}$	1
SMITH, JEAN (MISS), M.D.	Princess Louise.	II$^{1\,2}$	1
TALLERMAN, K. H., M.D.	London ; Padd. Green.	IV$^{3\,4}$	1
WYLLIE, W. G., F.R.C.P.	Westm. ; H. Sick Ch.	VII^{4}	1

Physicians

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
ABRAHAMS, ADOLPHE, F.R.C.P.	Westm. ; Hamps.	II$^{2\,3}$	2
BOLDERO, H. E. A., F.R.C.P.	Middlesex ; Evelina.	III^{5}	1
BOURNE, GY., F.R.C.P.	St. Bart.'s ; K. George.	V^{1}	1
BURNFORD, J., F.R.C.P.	W. Lond. ; Lond. Jewish	II^{4}	1
CLARK-KENNEDY, A. E., F.R.C.P.	London.	IV^{1}	1
DAVIDSON, M., F.R.C.P.	Miller ; Brompton.	II^{1}	1
EAST, C. F. T., F.R.C.P.	King's C. : Woolwich.	VII^{2}	1
GAINSBOROUGH, HUGH, F.R.C.P.	St. George's; L. Jewish	III^{1}	1
GOSSE, A. HOPE, F.R.C.P.	St. Mary's; Brompton.	I^{1}	1
HAMILL, PHILIP, F.R.C.P.	Metrop.; St. And., D.H.	VI$^{3\,4}$	2
HICKLING. R. A., F.R.C.P.	Charing X.	I^{2}	1
HUNT, T. C., D.M.	St. Mary's.	VI^{1}	1
LAKIN, C. E., F.R.C.P.	Mid'x. ; Lond. Fever.	VII$^{3\,4}$	2
LINNELL, J. W., M.D.	Metropolitan.	IV^{4}	1
LLOYD, W. E., M.D.	Westm. ; Brompton.	V^{3}	1
NEWMAN, C. E., F.R.C.P.	King's Col. ; Belgrave.	VII^{1}	1
OWEN, S. A., F.R.C.P.	W. Lond.; Queens H.Ch.	IV$^{2\,3}$	2
PINCHIN, A. J. S., F.R.C.P.	Hamps. ; Vict. Park.	III$^{3\,4}$	1
POULTON, E. P., F.R.C.P.	Guy's.	VI^{2}	1
ROLES, F. C., M.R.C.P.	Nat. Temperance.	V^{2}	1
WARD, G. E. S., F.R.C.P.	Middlesex.	III^{2}	1
WILSON, C. M., F.R.C.P.	St. Mary's.	I^{3}	1

Radiologists

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BERRY, H. M., M.D.	Roy. Masonic.	I^{3}	2
BRACKEN, J. P., M.R.C.S.		VI^{2}	3
COLLINS, H. W., M.D.	Weir Hosp.	VII^{4}	3
CRICHLOW, T., M.R.C.S.		IV^{3}	2
DANIELS, J. J. N., M.B.		II^{2}	2
HALLETT, DENYS, M.B.	Qu. Mary's, Stratford.	V^{3}	2
HOLDSWORTH, E. E., M.B.	Charing Cross.	VI^{1}	3

Radiologists—(*continued*)

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
HOPE, M. E. (MISS), M.R.C.S.	Royal Northern.	VII^{1}	2
LYNHAM, J. E. A., M.D.	Mount Vernon.	II^{4}	2
MONTGOMERY, S. K., M.D.	Middlesex ; Brompton.	I^{2}	2
MUIR, JOHN, M.B.		V$^{1\,2}$	6
MURRAY, R. G., M.D.	St. Mary's W. & Ch.	I^{1}	2
NICHOLAS, F. G., M.B.	Middlesex.	II^{1}	2
RAE, L. J., M.B.		VI^{4}	2
RAYNER, F. L., M.R.C.S.		III$^{2\,3}$	3
SIMON, GEORGE, M.B.		VII^{2}	2
THIERENS, J. P., M.B.	Mid'x. ; Padd. Green.	IV^{4}	3
WEBSTER, J. H. D., M.D.	Middlesex.	III$^{4\,5}$	2
WHITE, E. M. (MISS), M.R.C.S.	E. G. A.	II^{3}	2
WILSON LEE, J. E., M.B.		IV$^{1\,2}$	4
YEO, K. J., M.B.	Univ. Coll. ; St. John's.	VI^{3}	3

Surgeons

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BOYD, S. A., M.S.	Hampstead Belgrave.	III$^{3\,4}$	1
COLE, P. P., F.R.C.S.	Seamen Q. Mary's, E.	V^{2}	1
COPE, V. Z., M.S.	St. Mary's ; Boling.	VII^{4}	1
DAVIES-COLLEY, R., F.R.C.S	Guy's.	VI^{1}	1
ECKHOFF, N. L., M.S.	Guy's ; St. John's.	VI^{2}	1
EVANS, A. H., M.S.	R. Masonic ; R. North.	II^{2}	1
HANDFIELD-JONES, R. M., M.S.	St. Mary's.	VII^{2}	1
JOLL, C. A., M.S.	Roy. Free ; Cancer.	II^{1}	1
LOVE, R. J. M., M.S.	Roy. North ; Metrop.	IV^{2}	1
MARSHALL, C. J., M.S.	Charing X ; Vict. Ch.	I^{1}	1
NICHOLLS, M. F., F.R.C.S.		II^{3}	1
PANNETT, C. A., F.R.C.S.	St. Mary's.	I^{3}	1
PERRIN, W. S., F.R.C.S.	London.	IV^{3}	1
RAMSAY, R. A., F.R.C.S.	Metrop. ; Belgrave.	V^{1}	1
SHATTOCK, C. E., M.S.	R. Free ; Padd. Green.	III$^{1\,5}$	1
SLESINGER, E. G., M.S.	Guy's.	VI^{3}	1
STEWARD, F. J., M.S.	Guy's (Cons.).	V^{3}	1
TANNER, W. E., M.S.	P. of Wales ; Evelina.	VI^{4}	1
TURNER, PHILIP, M.S.	Guy's.	II^{4}	1
WAKELEY, C. P. G., F.R.C.S.	King's C. ; Belgrave.	I^{2}	1
WARWICK, W. T., F.R.C.S.	Middlesex.	III^{2}	1
WHIGHAM, J. R. M., M.S.		IV^{4}	
WILLIAMS, B. W., F.R.C.S.		VII^{1}	1
WOOLF, A. E. MORTIMER, F.R.C.S.	Qu. Mary's, Stratford.	IV^{1}	1

Urologists.

Name.	Voluntary hospital to which attached.	L.C.C. group.	Wk. S.*
BELL, J. G. YATES, F.R.C.S.	King's Coll.	VII$^{3\,4}$	1
CARVER, JAMES, F.R.C.S.		II	
EVERIDGE, JOHN, F.R.C.S.	King's Coll.	VII$^{1\,2\,6}$	1
LOUGHNANE, F. M., F.R.C.S.	St. Mary's Wom. & Ch.	V	1
MORSON, A. C., F.R.C.S.	Hampst. ; *St. Peter's.*	III	1
RICHES, E. W., M.S.	Mid'x. ; SS. John & Eliz.	VI	1
ROCHE, A. E., F.R.C.S.		IV	1
WINSBURY-WHITE, H. P., F.R.C.S.	St. Paul's ; E. Lond.	I	1

Anæsthetists

Name.	Voluntary hospital to which attached.
CHALLIS, J. H. T., M.R.C.S.	London ; Golden Square.
CHURCHILL, H. J. C., M.R.C.S.	Metropolitan.
CLAYTON, J. C., M.R.C.S.	Charing X. ; Univ. College.
COGSWELL, A. P. L., M.B.	King's Coll. ; Qu. Mary's, E.
DAVIES, H. W., L.M.S.S.A.	
DODWELL, H. B., B.CHIR.	Roy. North. H. Epil. & Par.
EDWARDS, GEORGE, M.R.C.S.	St. George's ; Samaritan.
GOULD, R. B., M.B.	
GRIFFITH, M. (MISS), M.B.	Lond. Hom.; E. Lond. Childr.
HARDY, H. W., M.R.C.S.	
HASLER, J. K., M.B.	Dreadnought ; St. Mark's.
HENSMAN, J. S., B.CHIR.	Queen's Childr.
HUDSON, M. W. P., M.B.	
HUNTER, J. T., M.R.C.S.	Royal *Dental* ; Queen's Ch.
HUTCHINSON, SAMUEL, M.R.C.S.	Univ. Coll. ; Roy. Waterloo.
JOHNSON, HENRY, L.S.A.	Charing X. ; Metrop. Throat.
KERRIDGE, A. R. (MISS), M.R.C.S.	Bolingbroke ; P. of Wales, Tottenham.
MORRIS, L. H., M.R.C.S.	
PHILLIPS, G. R., M.R.C.S.	St. Mary's : Cancer.
PRATT, F. H.	St. John's.

Anæsthetists—(*continued*)

Name.	Voluntary hospital to which attached.
ROBINSON, W. E., M.D.	Infants ; Roy. Waterloo.
SEYMOUR, E. A., M.B.	Hampstead.
SMITH, C. MOORE, M.B.	Woolwich.
SUNDERLAND, ARTHUR, M.R.C.S.	Charing X. ; Chelsea.
VESSELL, V. E., M.R.C.S.	Roy. Northern : Grosvenor.
WELLS, V. W. L., M.R.C.S.	Miller.
WHYTE, HENDERSON, M.R.C.S.	London.
WILLIAMS, K. LLOYD (MISS), M.D.	Royal Free ; E. G. Anderson
WILLIAMS, M. E. (MISS), M.R.C.S.	Miller.

Neurologists

Name.	Voluntary hospital to which attached.
BRINTON, D. H., M.R.C.P.	
CRITCHLEY, M., F.R.C.P.	King's Coll.; Nat., Q. Squar
DENNY-BROWN, D. E., M.R.C.P.	
ELKINGTON, J. ST.C., M.R.C.P.	St. Thomas's.
MARTIN, J. P., F.R.C.P.	Bolingbroke; Nat., Q. Squar
PRITCHARD, E. A. B., M.D.	H. *Epil.* & *Par.*, Maida Val
WYLLIE, W. G., F.R.C.P.	Westm. ; H. for Epil. & Pa

* Wk. S. = weekly sessions.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Lt.-Comdr. *A. H. Harkins* to be Surg. Comdr.

The following appointments are notified : Surg. Comdr P. L. Gibson to *President*, for course, and G. G. Newma to *Vivid*.

Surg. Lt.-Comdrs. A. E. Phillips to *Suffolk* and E. T. Rudd to *Victory*, for Portsmouth Barracks.

Surg. Lt.-Comdr. (D) E. G. Adams to *Pembroke*, fo Chatham Barracks ; L. V. Donegan to *Ganges ;* S. Mawe to *Hood ;* and D. H. le Marchant to *Pembroke*, for Chatha Barracks.

Surg. Lts. *C. T. Hyatt* to *Pembroke*, for Chatha Infirmary, and C. G. Owen to *Cricket*.

ROYAL ARMY MEDICAL CORPS

Maj. (prov.) J. C. Collins from the secd. list is restd. t *the estabt.*

RESERVE OF OFFICERS

Lt.-Col. S. L. Pallant and Lt.-Col. R. J. Franklin, havin attained the age limit of liability to recall, cease to belon to the Res. of Off.

TERRITORIAL ARMY

Lts. H. Baxter and P. D. Thomson to be Capts.

Lt. E. C. Ellis (*late R.F.A., S.R.*), *J. D. Finlayson*, an E. Fowler, late Offr. Cadet Sergt. (Med. Unit) Univ. o Lond. Contgt., Sen. Div., O.T.C., to be Lts.

TERRITORIAL ARMY RESERVE OF OFFICERS

Col. Sir T. Crisp English, having attained the ag limit, retires and retains his rank, with permission t wear the prescribed uniform.

INDIAN MEDICAL SERVICE

Lt. W. Fleming to be Capt.

The provisional promotions of the undermentioned Capts. are confirmed : A. M. Fraser, M. H. Shah, J. R. Dogra, S. Narain, M. G. Saincher, B. L. Taneja, G. K. Graham, A. W. West, A. B. Guild, D. Datt, and R. T. Hicks.

ROYAL AIR FORCE

The undermentioned Flying Officers are promoted to the rank of Flight Lt. : J. A. Kersley and O. S. M. Williams.

SCOTTISH HEALTH DEPARTMENT.—Dr. Alec B. Walker, F.R.C.P. Edin., has been appointed a regional medical officer in this department. He was formerly Freeland Barbour Fellow of Edinburgh University, and for over six years has been engaged in private practice in Newtongrange, Midlothian.

CORRESPONDENCE

PROBLEMS OF SPINAL ANÆSTHESIA

To the Editor of THE LANCET

SIR,—In your last issue Dr. Howard Jones mildly protests that, in my paper on Spinal Anæsthesia published the week before, I claimed to have anticipated him in using the method which I call "volumetric displacement," and he designates "direct injection." I find on reference to that paper that I stated he uses the method of volumetric displacement. If the context should lead anyone else to the same deduction as Dr. Howard Jones let me hasten to deny any such intention. All the world knows the valuable contribution he has made to spinal anæsthesia by his writings in recent years. The method of injecting a large volume of solution without withdrawal of cerebro-spinal fluid must have occurred to many workers. Dr. Howard Jones, however, has been generally acknowledged as the originator and strong advocate of it in this country. In my previous paper (1929) to which he refers, I attempted to give an explanation of the reason for its success. I do not think it could be fairly said that my words claim priority.

In the same letter he claims, in an earlier contribution (*Brit. Med. Jour.*, 1931, ii., 488), to have originated the idea of pulsation as a cause of spread of an injected anæsthetic substance. In that paper, after declaring that there is no circulation of cerebro-spinal fluid "which would effect the immediate distribution of drugs injected," he goes on to say "waves of condensation and rarefaction are communicated to the fluid by the respiratory and cardiac impulses which may have some effect over a more prolonged period." This vague assertion, unsupported by any evidence, he now says meant "pulsation of the brain and the large arteries at the base." The identity of this with the mechanism I described is rather difficult to discern; but as both Dr. Howard Jones and I are actuated by the same desire for the discovery of truth and the progress of anæsthetic science, I feel sure he will accept my expression of regret that I did not specifically mention his priority in the conception of the volumetric method. I assure him that I should be the last to suggest that I have any claim to be regarded as the first man to perceive that the pulsating extradural vessels might have some influence on the movement of the cerebro-spinal fluid upon which the idea of "mechanical commotion" is based, a notion which, supported by experiments and clinical observations, renders the method of volumetric displacement unnecessary and undesirable.

I am, Sir, yours faithfully,
CHARLES A. PANNETT.
London, W., July 29th, 1933.

THE ROYAL SOCIETY DISCUSSION ON "EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS"

To the Editor of THE LANCET

SIR,—Dr. J. A. Murray's opening to the discussion at the Royal Society published in your issue of June 17th is frankly disappointing. We had expected more from the director of the Imperial Cancer Research Fund than a reiteration of the so-called "irritation theory" which never was a theory of cancer since it never attempted to explain the genesis of the malignant cell, and has been discarded by most of those interested in the cancer problem. Very many different irritants have been tried but only a very few have been found to possess carcinogenic properties. Formalin, for instance, has entirely failed to produce cancer and mustard gas (dichlorodiathyl sulphide), which is a powerful irritant, not only does not produce cancer in mice, but actually inhibits the development of tar cancer in these animals. A still more convincing argument against irritation as a cause of cancer is that the most powerful carcinogenic agent yet discovered, 1 : 2 : 5 : 6 dibenzanthracene, is not an irritant, at any rate it produces no signs of irritation when applied to the skin. Criticism is surely the essence of scientific progress, and Dr. Murray's plea of *lèse majesté* is somewhat disconcerting. Why should a member of the committee under which he works be expected to consult him before expressing his views in THE LANCET?

I think Mr. Sampson Handley has drawn attention to a matter which may easily be a cause of very real danger to the best interests of cancer research, in the tendency there is for animal experimentalists to get out of touch with the surgeons and pathologists, who are dealing with the disease in human beings.

I am, Sir, yours faithfully,
J. P. LOCKHART-MUMMERY, F.R.C.S.
Harley-street, W., July 24th, 1933.

To the Editor of THE LANCET

SIR,—Mr. Handley's second letter makes it quite clear that his criticisms were not directed against the policy and conduct of this Fund. This was the only reason for my intervention and I shall not contribute further to this discussion.

I am, Sir, yours faithfully,
J. A. MURRAY,
Director, Imperial Cancer Research Fund.
July 29th, 1933.

"THE LIFE OF HAHNEMANN"

To the Editor of THE LANCET

SIR,—In your notice of Mrs. Hobhouse's "Life of Hahnemann" you maintain that vaccine therapy is contrary to Hahnemann's teaching, inasmuch as the vaccine is identical with the disease agent, not similar to it.

May I point out that the germ, taken to be the agent of the disease, is first removed from the body and grown in an artificial medium. This at once modifies its nature a little. Then, before being used as a vaccine, the organisms are killed, and another modification of their physical and chemical structure is thereby brought about. It is surely more exact, therefore, to describe the preparation as very similar to the disease agent: it can hardly be called identical.

It is interesting to find that Hahnemann discussed this very question 100 years ago in his "Chronic Diseases," where he claims that his remedy "psorin," made from the itch pustule, was so changed by preparation (trituration, &c.) as to be no longer identical, but "similar."

I am, Sir, yours faithfully,
Welbeck-street, W., July 28th, 1933. JOHN WEIR.

LACTIC ACID AS A FACTOR IN RHEUMATISM

To the Editor of THE LANCET

SIR,—May I be allowed to endorse everything that Dr. Drury Pennington has said about lactic acid in rheumatism. Percy Wilde originally observed that sweat reaction, measured when perspiration first starts, changes from acid to alkaline as clinical improvement occurs in the rheumatic state. I have checked this observation on many cases and have always found it correct. Dr. Pennington notes a rarity of rheumatism in warm damp climate. This observation also applies to countries where hot vapour baths are part of the ordinary routine of life. He makes an interesting suggestion about physiology and rheumatism. Deficient oxidation in the tissues as a cause of local acidosis appears to me to be a condition which needs much study. In this connexion Gowland Hopkins's observations on Glutathione are particularly interesting. Further, the work of Marsh in Persia on blood lactic acid and chlorides in heat stroke deserves consideration.

I agree that one should not always think of bacteria, but I think that the study of antidotes to bodily toxins is even more important than that of the bacterial soil.

I am, Sir, yours faithfully,
HENRY W. HALES.

Portland-place, W., July 28th, 1933.

CARDIOVASCULAR SYPHILIS

To the Editor of THE LANCET

SIR,—I was much interested in Dr. Noble Chamberlain's article on this subject in THE LANCET of July 1st, since a lengthened experience with circulatory diseases has convinced me that the syphilitic element in cardiovascular diseases is not sufficiently recognised, especially in patients over 50 years of age. I desire to call attention to a sign which I have frequently noted in these cases—viz., hyperalgesia over the neighbourhood of the sternum. This is especially found in aortitis, a condition generally of syphilitic origin. The method of applying the test is this. A large needle with a blunted end or similar instrument is held at an acute angle with the chest wall well to the right of the dull area, gentle pressure is made, and the line carried across the sternum beyond the left margin of the dullness. No pain is experienced at first, but soon the patient flinches and complains of sharp pain, which ceases when the needle arrives beyond the left line of dullness. It is to be noted that this super-sensitiveness to pressure diminishes along with an improvement in other symptoms under treatment. A minor condition of puffiness (not very soft) is generally found over the sternum.

Failure to recognise the syphilitic element in these cases is partly due to the fairly healthy appearance of the patient and, when suspicion of its presence is aroused, a too implicit reliance on the Wassermann test, especially a single one. Even in spite of a negative test the patient should not be denied the benefit of specific treatment when clinical evidence warrants it. In treating these cases I have found iodides the most reliable drug, aided by a two to three weeks' addition of half drachm doses of liq. hyd. perchlor. The dose of iodide may be increased from grs. 5 to 20 three times a day.

I am, Sir, yours faithfully,
CHARLES W. CHAPMAN.

Wimpole-street, W., July 28th, 1933.

PUBLIC HEALTH SERVICES

Maternal Mortality

ON July 15th the National Federation of Professional Workers wrote to the Minister of Health expressing its anxiety "at the evidence to be discerned in some quarters of a dangerous desire to economise" in maternity and child welfare services. Sir Hilton Young has replied, saying that "the maintenance and development of these vital services is, by common agreement, a matter of first necessity," and promising that full advantage will be taken of the special opportunity afforded by the general survey of the health services of local authorities by medical officers of the Ministry now in progress to press for necessary developments. He adds: "Publicity has been given to a statement that there has been a recent 'deplorable increase' in the maternal death-rate. The deaths per 1000 live births during 1932 were indeed 4·21 as compared with 4·11 in 1931, an increase of 0·01 per cent. of live births. The rate for 1932 was, however, lower than that for the three preceding years, 1928–30, which were: 1928, 4·42; 1929, 4·33; 1930, 4·40. . . It is indeed a matter of concern, with which we cannot be satisfied, that the maternal mortality-rate, although it has shown no increase of any statistical significance, has not shown the same marked and satisfactory fall that has been shown of late years both by the general death-rate and notably by the infant mortality-rate. It is this that makes it necessary to press ahead wherever necessary with raising the standard of the relevant services. But it can serve only to weaken our attack upon the evil to attach an exaggerated significance to minor variations in the rate, and to attribute them to causes with which they are wholly unconnected." The number of antenatal clinics increased by 84 during 1932, and there was an addition of 274 maternity beds during the year. "These facts," the Minister claims, "show that local authorities are continuing to improve and increase the maternity services."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 22ND, 1933

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 4 (last week 15); scarlet fever, 2384; diphtheria, 827; enteric fever, 62; acute pneumonia (primary or influenzal), 466; puerperal fever, 46; puerperal pyrexia, 103; cerebro-spinal fever, 22; acute poliomyelitis, 14; acute polio-encephalitis, 1; encephalitis lethargica, 8; dysentery, 2; ophthalmia neonatorum, 89. No case of cholera, plague or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 25th–26th was as follows: Small-pox, 27 under treatment, 0 under observation (last week 33 and 0 respectively); scarlet fever, 2120; diphtheria, 1627; enteric fever, 18; measles, 573; whooping-cough, 390; puerperal fever, 29 (plus 12 babies); encephalitis lethargica, 256; poliomyelitis, 1; "other diseases," 209. At St. Margaret's Hospital there were 21 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox, 3 (2) from enteric fever, 17 (2) from measles, 9 (2) from scarlet fever, 21 (12) from whooping-cough, 32 (10) from diphtheria, 50 (6) from diarrhœa and enteritis under 2 years, and 12 (1) from influenza. The figures in parentheses are those for London itself.

Ashton-under-Lyne reported the only death from enteric fever outside London. Measles was fatal in 4 cases at Liverpool, 2 each at South Shields and Birmingham. Four deaths from diphtheria occurred at Liverpool, 2 each at Croydon, West Ham, and Huddersfield. Of the deaths from diarrhœa outside London 14 were reported from Liverpool and 3 from West Bromwich.

The number of stillbirths notified during the week was 200 (corresponding to a rate of 30 per 1000 total births), including 46 in London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

The Summer Adjournment

BOTH Houses of Parliament adjourned for the summer recess on Friday, July 28th. They will reassemble on Nov. 7th unless summoned earlier to deal with matters of urgent public importance.

The Royal Assent was given in the House of Lords to a number of Acts passed during the past session, including the Appropriation Act, the Local Government and Other Officers' Superannuation (Temporary Provisions) Act, the Ministry of Health Provisional Order Confirmation (South Somerset Joint Hospital District) Act, the Ministry of Health Provisional Order Confirmation (Wath, Swinton and District Joint Hospital District) Act, the Manchester Royal Infirmary Act, the Samaritan Free Hospital for Women Act, and the Salford Corporation Act.

Local Government and Other Officers' Superannuation

On Tuesday, July 25th, the House of Lords went into Committee on the Local Government and Other Officers' Superannuation (Temporary Provisions) Bill. The Earl of ONSLOW was in the chair.

On Clause 1 (certain reductions in remuneration to be disregarded for purposes of superannuation),

The Earl of KINNOULL moved to leave out "April" and insert "July." He said that this was very reasonable amendment. It only extended the period where a reduction of wages might be disregarded for a further three months.

Viscount GAGE accepted the amendment, which was agreed to.

The Bill was read the third time and passed.

Hospitals and Motor Accidents

The Road Traffic (Compensation for Accidents) Bill, which was introduced by Lord DANESFORT, and was subsequently examined by a Select Committee, was considered in Committee by the House of Lords on July 25th.

Clause 3 of the Bill reads as follows :—

Amendment of Section 36 of Road Traffic Act, 1930, with respect to payments to hospitals.—Section 36 of the Road Traffic Act, 1930, shall have effect as though the following subsection were substituted for Subsection (2) thereof :—

"(2) Where any payment is made (whether or not with an admission of liability) by—

"(*a*) an authorised insurer under or in consequence of a policy issued under this Part of this Act ; or

"(*b*) the owner of a vehicle in relation to the user of which a security under this Part of this Act is in force ; or

"(*c*) the owner of a vehicle who has made a deposit under this Part of this Act,

"in respect of the death of or bodily injury to any person arising out of the use of a motor vehicle on a road or in a place to which the public have a right of access, and the person who has so died or been bodily injured has to the knowledge of the authorised insurer or such owner as the case may be received treatment at a hospital whether as an in-patient or as an out-patient in respect of the injury so arising, there shall also be paid by the authorised insurer or such owner to such hospital the expenses reasonably incurred by the hospital in affording such treatment after deducting from such expenses any moneys actually received by the hospital in payment of a specific charge for such treatment not being moneys received under any contributory scheme :

"Provided that the amount to be paid by the authorised insurer or such owner shall not exceed fifty pounds for each person so treated as an in-patient or five pounds for each person so treated as an out-patient.

"For the purposes of this subsection the expression 'hospital' means an institution which provides medical or surgical treatment for in-patients and the expression 'expenses reasonably incurred' means—

"(*a*) in relation to a person who receives treatment at a hospital as an in-patient, an amount for each day such person is maintained in such hospital representing the average daily cost per in-patient of the maintenance of the hospital and the staff thereof and the maintenance and treatment of the in-patients therein ; and

"(*b*) in relation to a person who receives treatment at a hospital as an out-patient reasonable expenses actually incurred."

The Earl of HALSBURY moved to leave out the clause inasmuch as the Bill had been originally introduced by the noble Lord without the faintest idea of helping the hospitals or any one except pedestrians. He said that Lord Moynihan's representations, which had met with universal approval, led to the drawing up of a substantive Bill dealing with hospitals, and therefore he (Lord Halsbury) thought that Clause 3 ought not to be introduced into the present Bill.

Lord DANESFORT was sure that the Committee would consider it a disaster if provisions in the Bill in respect to hospitals were not included, the cost to these institutions for treating injured persons amounting to about £200,000 a year. There was general approval of the introduction of a clause to deal with in-patients in hospitals under his (Lord Danesfort's) Bill, and the Select Committee had heard a large amount of evidence on the subject, including that of Mr. J. H. Whitley, representing the King Edward's Hospital Fund and other hospitals. On Mr. Whitley's evidence a clause carefully prepared on behalf of the hospitals was put forward, and it was now incorporated in the Bill as Clause 3.

Viscount ELLIBANK said that Lord Moynihan was a party to the clause being included in the Bill.

Lord LUKE said that he moved a clause which was inserted in the Road Traffic Act, 1930, with a view to covering some of the claims of hospitals arising out of road accidents. Apparently that clause had not covered a sufficient number of claims, and therefore this clause was prepared by the British Hospitals Association and the King Edward's Hospital Fund and submitted by Mr. Whitley to the Select Committee who had inserted it in this Bill. The number of in-patients and out-patients using the hospitals in 1931 as a result of motor accidents was about 60,000. The total cost to the hospitals was estimated at £230,000. That did not show a very high average cost, but the hospitals were usually run fairly economically. It was suggested that £25 should be the maximum charge the hospitals should make, and that was now to be increased to £50. But the average of about £4 a case in 1931 did not suggest that there would be many £25 or £50 cases. If any payment was made to the hospitals in the case of accidents the hospital was not able to enforce its claim on the insurance company. The present clause put the matter right. He thought that the clause had met with the full approval of all the hospital associations who had been got together for the purpose, and it had also been approved by the Select Committee.

The Earl of HALSBURY withdrew his amendment, and Clause 3 was agreed to.

The Bill passed through Committee.

Birching of Children

The Earl of KINNOULL moved, "That in the opinion of this House the power of the courts to order the birching of children should be abolished." He said that the principle of his motion was accepted by the House of Commons in connexion with the Children's Act, but their Lordships had insisted on retaining the right of magistrates to order these birchings. The psychological effect on the children was absoluely devastating. He had letters from eminent doctors on the subject. A doctor who a short time ago was a Member of the House of Commons said : "Judicial birching of young children is disgraceful, and can only do harm." Lord Kinnoull quoted other medical opinion to the effect that great mental harm was produced by birching, and continued: the Home Office discouraged the birching of children, and the Government wished to abolish it, but they had no power to restrain the magistrates from ordering it. He hoped that their Lordships would reverse their decision given on the last occasion.

The Earl of MIDLETON protested against a proposal to make a considerable change in the criminal law being raised at that hour of the evening on nearly the last day of the Parliamentary session.

The Earl of LUCAN, replying for the Government, said that it was hardly reasonable to suppose that the House having twice enforced their views on the Government on this matter would come to any other decision now. He therefore asked Lord Kinnoull not to press his motion.

The motion was negatived.

Factory Administration

In the House of Commons on Friday, July 28th, on the motion for the adjournment of the House for the summer recess,

Mr. RHYS DAVIES raised the question of factory administration. He said that we as a nation have attained the first century of factory inspection in this country. It was a great achievement of which they all might be proud. The factory inspectors have been the friends of the good employer and the enemy of any person who regarded his workpeople as machines. Without our factory inspectorate and the legislation which it was called upon to enforce it was quite possible that in 1933 the conditions of the 6,000,000 people employed in the factories and workshops of this country might be as bad as those of industrial Japan. But if it was true that the industrial population was growing, the inspectorate at the Home Office should not be diminished. The Home Office had hardly commenced to establish a health and medical department covering factories and workshops, and the improvement in the health of the community as a whole was much more rapid in its progress than the improvement in the welfare of those employed in factories and workshops. He was distressed to read in the report of the chief inspector of factories and workshops for 1932 that the number of accidents due to transmission machinery showed an increase from 1006 in 1931 to 1074 in 1932. The Labour Party put the blame partly on the fact that the inspectorate was not adequate. They were very much alarmed that the vacancies in the inspectorate have not been filled. It was true that as regards transmission machinery the number of fatalities had declined from 44 to 26 during the same period, but the statistics relating to human welfare in industry as a whole were not so rosy as those covering public health in general. The chief inspector made the statement that safety appliances in relation to transmission machinery were not even now in universal use. While paying tribute to the medical side of the work of the Home Office in connexion with factory inspection and industrial disease, he wanted the Office to pay more attention to the health of the operatives. During 1933 there were 37 fatalities and 10,242 non-fatal accidents in the textile industry, while in the non-textile factories there were 373 fatal and 86,648 non-fatal accidents. He gave figures showing fatalities in conversion and rolling mills, tube making, and in the chemical paints and varnish sections of industry, and pointed to figures in the report relating to docks and building operations, and to the increase in lead poisoning during ship-breaking. On the other hand it was gratifying to know that there was a decrease in the number of cases of lead poisoning in painting, from 64 cases in 1931 to 43 cases in 1932. This was due to the passing of the Lead Paint Act some years ago. The Home Office ran a disinfecting station in Liverpool with a view to preventing the spread of anthrax. He wanted to know whether that station was being kept up to date. The most pathetic case of all was industrial cancer. He quoted the figures given in the chief inspector of factories' report (p. 318), and asked whether any progress was being made in connexion with industrial cancer. He referred to the deaths from asbestosis, and to the contraction of certain disabilities as a result of noise and vibration. He considered also that more information ought to be forthcoming with regard to miners' nystagmus.

Mr. LEWIS JONES said that there was nothing which was causing so much concern to employers generally as the bravado of workpeople in industry. He suggested that the trade union leaders might coöperate with the employers in trying to instil into workpeople how important it was that they should take greater care and less risk in the works. Employers were inspired by a desire to reduce the accident rate.

Mr. TINKER said that the Home Office controlled the appointment of the medical referees under the Workmen's Compensation Act. At present only one medical referee was appointed and this gave rise to great concern among the workpeople. He asked the Home Secretary to consider the appointment of three medical referees instead of one. If the medical referee, whose decision was final, made a mistake, the workman could not get any redress, and therefore he asked that in certain cases more than one medical referee should be asked to pass judgment. He hoped that the Home Secretary would realise that he had not gone far enough yet in regard to silicosis. It had been proved lately that owing to the mines getting deeper, and consequently hotter, many of the workmen were subject to boils and other outbreaks on the body. He wanted the Home Secretary to press on with his investigations and schedule these cases so that something could be done for these men.

HOME SECRETARY'S REPLY.

Sir JOHN GILMOUR said that the report of the chief inspector showed clearly that the work was being maintained at a high standard, and he was sure that the present inspectorate did not fall short of that which had gone before. The fluctuations in the figures of accident cases were due to a great variety of causes besides increase or decrease in safety precautions, and the inferences to be drawn from a mere comparison for successive years were largely a matter of speculation. Moreover, it would be difficult to obtain satisfactory data to form the basis for very reliable conclusions as to whether particular industries were becoming less dangerous. The filling of vacancies on the staff was at present under consideration, and he understood that a new competition for this purpose would probably be held very shortly. He thought it would be found that the growth of the Safety First movement was having its effect in reducing accidents. The Home Office have ample powers to make safety regulations. New building regulations were made less than two years ago and a new code for docks had been issued in draft. As to the six-loom per weaver system, that was being very carefully watched. Any increase in accidents ought to come to light at an early stage. The prevention of lead poisoning in the ship-breaking industry presented very great difficulties, particularly as the removal of the fumes by exhaust ventilation had not been found a practical possibility. One of the problems was to devise a respirator which would really obviate the danger. Research was going on intensively into this problem. There was undoubtedly an improvement in the paint industry which would be greatly welcomed. He could assure the House that the anthrax station had been kept in operation, and in fact there was a scheme for extending the materials to be disinfected, and they hoped also to lighten the cost to industry. That scheme had just been submitted to the employers. The causes of and methods of preventing skin diseases and skin cancer presented most difficult problems on which a vast amount of research had been made; but pending further discoveries one of the most important methods of preventing skin cancer was early detection and treatment of the growth. As regarded cancer of the nose, reported as having occurred during the past eleven years at nickel refinery works, the steps taken to discover whether the disease was caused by this occupation were dealt with in the chief inspector's report. The examination of workers was being continued. but no further cases have been reported. As regarded cancer of the bladder among dye workers, while inquiries were being continued by the factory department and others, the connexion between the disease and the occupation had not actually been established. This was one of the most difficult sections of the research work. An increasing number of firms had adopted the non-silicosis abrasive method, and the factory department were urging on employers the desirability of this or other precautions. Investigations on the effects of noises and vibration were being made by the Industrial Health Research Board, and it was the duty of factory inspectors to call attention to cases when they went round. But it was hardly true to say that all modern machines were noisy; indeed in many cases they were increasingly silent. The effect of speeding-up work and things of that nature were really matters for the Health Research Board rather than for the factory department. Many of the matters which had been discussed in that debate must depend upon scientific research. Such research was being actively pursued to-day and would be in the future. It might be that the time would arrive when further legislation would be required. but he was not in a position at present to forecast what might happen in the future, or to hold out any hope of immediate legislation.

HOUSE OF COMMONS

WEDNESDAY, JULY 26TH

Child Marriage in India

Miss RATHBONE asked the Secretary of State for India whether any steps had been taken by any of the local governments to carry out the administrative measures recommended over four years ago by the Age of Consent Committee as essential for the effective administration of legislation in restraint of child marriage; and whether, in view of the fact that the Sarda Child Marriage Restraint Act had now been nominally in force for three years and three months and was widely disregarded, he would secure from the Government of India a report upon the question of what steps should be taken to secure the enforcement and, if necessary, the strengthening by amendment of the Act.—Sir S. HOARE replied: I have not yet received the information for which I have asked regarding the administrative steps taken by local governments to give effect to the recommendations of the Age of Consent Committee. The whole question is under the consideration of the Government of India.

Fatal Motor Accidents in London

Captain DOWER asked the Home Secretary if his attention had been drawn to the increase in the number of persons killed and injured by motor vehicles in London during the first six months of this year compared with the same period of 1932; and what action, if any, he proposed to take with regard to this growing menace.—Sir JOHN GILMOUR replied: Yes, Sir, and everyone will, I am sure, deplore the increase in the number of accidents which is disclosed. The problem has many aspects, but I think it is clear that any reduction in the number of accidents must be dependent, in the main, on the exercise of greater care and a higher sense of responsibility on the part of all road users. So far as the police are concerned, the enforcement of the law and other work in connexion with road accidents already absorbs a large amount of their time and energies; and I can assure my hon. friend that they will continue to do all in their power to contribute to the safety of road users.

Scarlet Fever in Scotland

The Duchess of ATHOLL asked the Secretary of State for Scotland how many cases of scarlet fever were notified in Scotland in the first two quarters of 1932 and 1933 respectively; what were the figures for the same periods in 1930 and 1931; and, in view of the recent high incidence of the disease referred to in the annual report of the Department of Health for Scotland for 1932, what action he was taking in the matter.—Mr. SKELTON replied: There were 13,458 cases of scarlet fever notified in Scotland in the first two quarters of 1932, and 13,317 in the first two quarters of 1933. The corresponding figures for 1930 and 1931 were 6914 and 7671 respectively. My right hon. friend is much concernd at the continued prevalence of the disease. The Department of Health for Scotland have had the matter under close observation, and as a first step in the consideration of what further preventive or other measures might be taken to reduce the incidence, the chief medical officer of the department has arranged to confer at an early date with the medical officers of health of the areas most seriously affected.

THURSDAY, JULY 27TH

Public Assistance (West Ham)

Mr. GROVES asked the Minister of Health the number of men and women, separately, in receipt of in- and outdoor public assistance in West Ham for 1924, 1929, and 1931 respectively.—Sir E. HILTON YOUNG replied: In 1924 and 1929 the county borough of West Ham formed part of the West Ham Union, and the desired figures are not available for these years. In the year ended March 31st, 1931, the average numbers of men and women in receipt of outdoor relief in the county borough, excluding those in receipt of domiciliary medical relief only, were 2140 and 3431 respectively. Corresponding averages are not available as regards institutional relief, but on Jan. 1st, 1931, 960 men and 764 women (excluding rate-aided patients in mental hospitals and casuals) were in receipt of such relief.

Housing Shortage in Midlothian

Captain RAMSAY asked the Secretary of State for Scotland whether he was aware that there was a shortage of houses in the Gorebridge area of Midlothian, and that a number of persons who had been unable to obtain real houses were compelled to live in Army huts; whether he would urge the local authority to take steps to deal with the shortage; and whether, in approving any housing proposals submitted by the local authority, he would secure that when the new houses were being let a preference was given to those who were at present living in Army huts.—Mr. SKELTON replied: Representations have recently been received regarding the unsatisfactory housing conditions under which certain families are living in the Gorebridge area, but except for the case of one family who are living partly in a single room and partly in a small hut nearby, and who have now been offered the tenancy of a council house at an early date, I am not aware of families being compelled to live in Army huts. The county council have been urged by the Department of Health to submit proposals for the erection of houses to replace unfit houses which should be demolished or closed, and to deal with cases of overcrowding in their area. With regard to the last part of the question, I cannot give such an assurance as is suggested.

International Sanitary Convention

Colonel ROPNER asked the Secretary of State for Foreign Affairs whether he was aware that the Argentine authorities declined to accept a certificate of fumigation of vessels by the ordinary sulphur process generally employed in this country; and whether, as the Argentine action was contrary to the International Sanitary Convention, although the Argentine signed it and the Argentine director of health undertook that their regulations would be brought into accord with it, he would take some action in the matter.—Mr. EDEN (Under-Secretary for Foreign Affairs) replied: The attention of H.M. Government has been drawn to this matter and representations on the subject are being made to the Argentine Government.

Colonel ROPNER asked the Secretary of State for Foreign Affairs whether he was aware that Spanish authorities declined to accept a renewed exemption certificate; and whether, as this action was contrary to the International Sanitary Convention, which Spain has both signed and ratified, he would state what action it was proposed to take.—Mr. Eden replied: I am aware that complaints have been made in the sense referred to by my hon. friend, and I understand that the International Office of Public Health has taken up the matter with the Spanish delegate.

Public Assistance (England and Wales)

Mr. Groves asked the Minister of Health the total amounts expended upon in- and out-door public assistance in England and Wales in the years 1924, 1929, and 1931 respectively.—Sir E. Hilton Young replied: The following statement gives the desired information. Statement showing the amounts expended on institutional and domiciliary poor relief in England and Wales during the under-mentioned years (excluding the maintenance of rate-aided patients in mental hospitals).

Year ended March 31st.	Expenditure other than out of loans for capital purposes, or during the year ending March 31st, 1931, other than out of capital receipts.	
	Institutional relief.	Domiciliary relief.
	£	£
1924	15,026,563	16,827,268
1929	17,176,649	15,499,129
.1931	16,510,060	13,205,277

Mr. Groves asked the Minister of Health the number of men and women respectively in receipt of in- and outdoor public assistance in England and Wales for the years ended 1924, 1929, and 1931 respectively.—Sir E. Hilton Young replied: The following is a statement showing the numbers of men and women in receipt of institutional and outdoor poor relief in England and Wales in the under-mentioned years (excluding rate-aided patients in mental hospitals, casuals, and persons in receipt of domiciliary medical relief only):—

Year ended March 31st.	Institutional.		Outdoor.	
	Men.	Women.	Men.	Women.
1924	87,826	69,054	212,506	341,297
1929	94,883	73,096	204,394	324,193
1931	88,603	70,185	176,501	290,487

The figures as to institutional relief relate to Jan. 1st in each year. The figures as to outdoor relief are the averages of the numbers on one day in each week in the year.

Slum-free Areas in Scotland

Sir Archibald Sinclair asked the Secretary of State for Scotland the names of the towns in Scotland which, in response to the official inquiry, had notified the Department of Health that they had no slums.—Sir Godfrey Collins replied: After the passing of the Housing (Scotland) Act in 1930 the town councils of the following burghs in Scotland indicated that no new houses were required to replace unfit houses that should be demolished or closed—namely, Aberchirder, Aberfeldy, Abernethy, Ballater, Banchory, Blairgowrie, Bridge of Allan, Burghead, Coupar Angus, Cove, Cullen, Dornoch, Elie, Fortrose, Inveraray, Invergordon, Kinross, Ladybank, Lauder, Lockerbie, Millport, Monifieth, Newport, and Portknockie. I may add that local authorities are required under the Act to submit further statements as to housing requirements in their areas at the end of 1933.

Supply of Milk to School-children

Sir Archibald Sinclair asked the Secretary of State for Scotland which county councils in Scotland had schemes for the supply of milk to school-children; how many school-children benefited; and what contributions were paid by the parents under each scheme.—Sir Godfrey Collins replied: Two education authorities in Scotland—Selkirk and West Lothian—have adopted schemes for the supply of milk to school-children under the provisions of the Education (Scotland) Act, 1930. The scheme in Selkirk provides one pint of certified milk per day for, approximately, 48 children, the cost being borne by the education authority. The West Lothian scheme, which provided milk for about 150 children at the cost of the authority, has now been discontinued. Schemes for the provision of milk apart from the 1930 Act are in operation in Edinburgh and Aberdeen. In Edinburgh one-third of a pint of Grade A (T.T.) milk per day is supplied to, approximately, 6000 school-children. Except in the case of 350 children the cost of 1*d.* per day is borne by the parents. In Aberdeen, approximately, one-third of a pint of pasteurised or of Grade A (T.T.) milk per day is supplied to, approximately, 8000 school-children. The cost to the parents is 1*d.* per day. No cost to the local authority is incurred.

Slums and Overcrowding in Glasgow

Mr. Neil Maclean asked the Secretary of State for Scotland whether he was aware of the recent estimate made by architects that a minimum of 100,000 houses was required to replace existing slums and overcrowded houses in Glasgow; and whether he would take the necessary action to influence the city council to bring forward the building schemes essential to provide the necessary houses.—Sir Godfrey Collins replied: The answer to the first part of the question is in the negative. As regards the second part, the Department of Health have already addressed special letters to Glasgow Corporation urging them to make the utmost possible provision for the erection of houses to replace uninhabitable houses and to abate overcrowding.

Mr. Neil Maclean asked the Secretary of State for Scotland if he was taking any action to compel local authorities to proceed with schemes for the replacement of slums and the accommodation of people who were at present housed in overcrowded dwellings.—Sir Godfrey Collins replied: Following upon the passing of the Housing (Financial Provisions) (Scotland) Act, 1933, the Department of Health, by circular dated May 30th, 1933, urged local authorities to press on with the provision of rehousing accommodation for persons living in uninhabitable houses. The department are following this up by special letters to all local authorities of areas in which, according to the available information, there appears to be need for the provision of further houses to replace unfit houses, and to relieve overcrowding.

FRIDAY, JULY 28TH

The Death of Mrs. Rosse

Mr. Cocks asked the Home Secretary whether he would inquire into the circumstances attending the death of Mrs. Rosse on Sept. 14th, 1932; if he was aware that at the inquest evidence was given that, owing to the time that had elapsed between the death and the examination of the body, it was impossible to ascertain whether or no the death was due to poisoning; if he was aware that representations were first made to Scotland Yard in December, and what steps were taken to investigate those representations; by whose directions were the inquiries closed so soon as Feb. 24th; at whose request were the inquiries reopened six weeks later; and why did the exhumation not take place until April 28th.—Sir John Gilmour replied: The circumstances were fully investigated by the coroner at the inquest concluded on July 19th, and I am aware of the evidence referred to in the second part of the question. I do not think that it would be in the public interest for me to make any statement as to the course of the investigations preceding the inquest, and I see no occasion for any further inquiry on my part.

Mr. Cocks: Why did Scotland Yard order this inquiry to be closed prematurely?

Sir John Gilmour: I have no reason to suppose that there was any desire not to make the fullest inquiry, and in fact there has been very full inquiry.

Hospital Extensions.—Princess Alice, Countess of Athlone, recently opened an extension of the Princess Elizabeth Orthopædic Hospital at Exeter which has cost £14,000. The Duchess of York opened the institution in 1927.—Louisa, Countess Howe, has opened enlargements, costing £2600, of Havan War Memorial Hospital.

OBITUARY

JAMES CARMICHAEL, M.D., F.R.C.P. Edin.

Dr. James Carmichael. who died in Edinburgh on July 24th, was one of the best-known physicians in the city. A son of a distinguished Edinburgh doctor, he was born in 1843, studied under Laycock, Matthews Duncan, Sir James Simpson, and Goodsir, traditional big names in the history of the Edinburgh University medical school. He graduated in 1864 and, after a few years of practice in Burntisland, came back to Edinburgh and turned his attention to the diseases of children, soon becoming a well-known and trusted specialist. He became physician to the Royal Hospital for Sick Children, and published many papers on diseases of children, and a valuable textbook on the subject. His papers indicated the width of his clinical knowledge, being entitled, inter alia, lesions of the temporo-sphenoidal region, gastro-intestinal disorder in sucklings, bronchial catarrh in infancy, simple basic meningitis, and acute pneumonia in children. Further his interests lay in studying the family relationships of sick children, and for at least 40 years his name was one to conjure with in the management of infancy. Long before the era of child welfare centres and the like. he had done a great deal to organise social clinics dealing with infancy. He paid regular attention to the Childrens' Shelter in Edinburgh, was chairman of the Society for the Prevention of Cruelty to Children. and was for many years physician to one of the houses of Fettes College.

JAMES CARMICHAEL

[Photograph from *Evening Dispatch*

A personal friend writes: "For many years Carmichael—'Jimmie' to all his friends—had taken no public part in medicine, but with all his older colleagues his name came readily to the lips, and few things were more interesting than to walk home with him from a meeting of one of the societies and to realise the freshness of his interests. He was full of Edinburgh traditions. and could always give interesting facts, often relevant to-day, about the teachers of his youth and the development of medical organisation in the city. He was a prominent member of the Royal Company of Archers. the King's bodyguard in Scotland. He won the King's Prize twice, was a golfer, and high in the circles of Freemasonry. For many years he was the father of the Royal College of Physicians of Edinburgh."

FREDERICK SMITH, C.B., L.R.C.P., L.R.C.S.I.

LIEUT.-COLONEL, R.A.M.C. (RET.)

WE regret to announce the death of Colonel Frederick Smith, which occurred on Wednesday, July 26th, in a nursing-home in London.

Frederick Smith, who saw an exceptional amount of service as an officer in the R.A.M.C., was born in 1858 at Horncastle, and educated at Dublin, where he took the double qualification in 1889. He immediately decided to enter the R.A.M.C., having had previous military experience both in the Zulu and Boer wars. At Netley he obtained the Herbert prize and the 2nd Montefiore prize, and later was assistant bacteriologist in the laboratory and gained the Parkes memorial prize. During the next two years he saw service in Sierra Leone, took part in the Mendi and Protectorate expeditions, and was awarded the medal with clasp. In 1900 the South African war broke out, throughout which he served, was mentioned in despatches and was awarded the D.S.O. for conspicuous good service. After the South African war he returned to Sierra Leone, and later saw fighting on the North-West Frontier of India, again receiving the medal and clasps. He was promoted colonel in 1912 and was due to retire, but when the European war broke out he was retained on active service. He held many important appointments during the whole war both at home and abroad. In 1915 he was appointed an A.D.M.S., and later served as D.D.M.S. in the near East. He was several times mentioned in despatches during the struggle, and for his services. was appointed C.M.G. in 1916 and C.B. at the close of hostilities.

As the result of his Eastern experiences, Colonel Smith wrote a monograph on "Drainage in Tropical Countries," while he was also the author of a valuable little book entitled "Modern Bullet Wounds," written from personal knowledge acquired during the Boer war. The main message of this small volume, which formed a part of the Alexander prize essay, was to suggest a means of providing readier first aid. With the Boer war there came a great increase in our knowledge of bullet wounds, and Colonel Smith, omitting details which were the common knowledge of surgeons, added much which pointed towards a more conservative plan of treating injuries to the long bones and joints. He deprecated the hasty removal of the wounded from the field, while he urged also that all soldiers should be trained in first aid and stretcher work. He wrote recently a short history of the R.A.M.C., in which he set out in convenient and readable form the story of the Corps from earliest times—this he places at 1660—to the conclusion of the European war. Of particular interest in this little book are brief summaries of the reasons for which officers of the R.A.M.C. earned the order of the V.C.

In Colonel Smith this Service has lost a distinguished officer and an earnest advocate of its claims to high consideration.

EDWIN COLLIER GREEN, O.B.E., M.R.C.S. Eng.

AT the age of 75, after a long illness. Mr. Collier Green, senior ophthalmic surgeon to the Derbyshire Royal Infirmary, died on July 30th in the institution to which he had devoted so much time and thought. Son of S. G. Green, D.D., he was born in 1858, near Rawdon in Yorkshire. After leaving school he studied architecture. but eventually entered St. Thomas's Hospital and qualified in 1881. In the following year he was appointed assistant to the house surgeon at the Derbyshire Royal Infirmary, and in due course he became house surgeon, which post he relinquished in 1887. Then he went to Moorfields to make a special study of diseases of the eye, and in 1888, when the governors of the infirmary decided to open an ophthalmic department, Collier Green was chosen as the first honorary ophthalmic surgeon. He established and maintained an up-to-date clinic, gaining the confidence and respect of the profession in the district in this, and also in his private consulting practice, being actively engaged in both until his last illness. For a number of years he also held the post of honorary ophthalmic surgeon to the Burton-on-Trent Infirmary, and gave his services to many other institutions in Derby. During the late war he was assistant county director of the southern area of the British Red Cross Hospitals, and he later became county controller of Voluntary Aid Detachments. He was the first secretary of the Derby Medical Society, in which he always took an active interest, and was chairman of the Derbyshire division of the British Medical Association for two years in succession at the time when the National Health Insurance Act was passing into law.

A colleague writes: "Mr. Collier Green found time for an amount of administrative hospital work, the value of which cannot be over-estimated. His knowledge of hospital architecture was wide and detailed, and the board of management came to rely on him for advice, both as to the efficiency and economy of any new building or structural alterations. His long term as chairman of the house committee is a tribute to their trust in him. Perhaps above all his colleagues on the honorary medical staff would like to say that their own unity, and the harmonious understanding which has existed at all times between themselves and the board of management, is largely to be attributed to Mr. Green's wise leadership. The whole profession locally will feel his loss. His advice was sought in all sorts of medical problems, private and public, and always given with kindly wisdom. To some he seemed a link with the past, but to all an active leader, always interested in new developments and using his influence to provide the latest scientific equipments entailed by the progress of medical science."

Mr. Green married the eldest daughter of the late W. G. Curgenven, for many years honorary surgeon to the Derbyshire Royal Infirmary, and she survives him with a daughter.

MEDICAL NEWS

University of Oxford

On July 30th the following degrees were conferred:—

B.M.—J. H. B. Beal, A. Carling, I. H. Gosset, and D. A. Jennings.

Royal College of Physicians of London

At the quarterly comitia on July 27th, with Lord Dawson of Penn, the president, in the chair, the following Fellows of the College were elected *officers for the ensuing* year:—

Censors: Sir Charlton Briscoe, Prof. A. J. Hall, Lord Horder, and Dr. Charles Bolton. Treasurer: Dr. S. P. Phillips. Registrar: Sir Raymond Crawfurd. Harveian Librarian: Dr. Arnold Chaplin. Assistant Registrar: Dr. C. E. Newman. Library Committee: Dr. H. R. Spencer, Dr. Anthony Feiling, Dr. J. D. Rolleston, and Dr. A. E. Clark-Kennedy. Curators of the Museum: Dr. S. E. Dore, Dr. G. E. Beaumont, Dr. Maurice Davidson, and Dr. Harold Gardiner-Hill. Finance Committee: Sir Percival Horton-Smith Hartley, Dr. Thomas Watts Eden, and Sir Charlton Briscoe.

The following were elected Examiners:—

Chemistry: Mr. Herbert Lambourne and Mr. C. S. Gibson. Physics: Mr. W. H. White and Prof. F. L. Hopwood. Materia Medica and Pharmacology: Dr. K. D. Wilkinson, Prof. J. A. Gunn, Dr. E. G. Holmes, Dr. Orlando Inchley, and Dr. R. St. A. Heathcote. Physiology: Prof. D. T. Harris and Prof. R. J. S. McDowall. Anatomy: Dr. Thomas Yeates. Pathology: Dr. C. M. Wilson, Dr. C. F. T. East, Prof. M. J. Stewart, and Dr. H. W. C. Vines. Medical Anatomy and Principles and Practice of Medicine: Dr. David Forsyth, Dr. C. M. Hinds Howell, Dr. H. Theodore Thompson, Dr. A. G. Gibson, Dr. M. A. Cassidy, Dr. Reginald Miller, Dr. H. C. Cameron, Dr. A. E. Naish, Sir Stanley Woodwark, Dr. L. S. T. Burrell, Dr. I. J. Davies, and Dr. J. W. McNee. Midwifery and Diseases peculiar to Women: Mr. J. M. Wyatt, Mr. A. J. McNair, Mr. D. W. Roy, Prof. Daniel Dougal, and Prof. R. P. R. Lyle. Public Health: (Part I.) Prof. M. E. Delafield; (Part II.) Dr. G. F. Buchan. Tropical Medicine: Prof. R. T. Leiper (Pathology and Tropical Hygiene), and Dr. N. Hamilton Fairley (Tropical Medicine and Surgery). Ophthalmic Medicine and Surgery: Dr. W. J. Adie. Psychological Medicine: (Part I.) Dr. R. D. Gillespie; (Part II.) Dr. S. A. Kinnier Wilson and Dr. A. A. W. Petrie. Gynæcology and Obstetrics: Mr. J. P. Hedley. Laryngology and Otology: Mr. Lionel Colledge. Radiology: Mr. J. H. Brinkworth, D.Sc. (Physics), and Dr. H. K. Graham Hodgson (Radiology). Murchison Scholarship (1934): Dr. O. F. F. Leyton and Dr. J. Forest Smith.

The Baly medal, awarded every alternate year to the person who shall be deemed to have most distinguished himself in the science of physiology during the two years immediately preceding the award, was awarded to Mr. Robert Robison, D.Sc., F.R.S., professor of biochemistry in the University of London, for his distinguished work at the Lister Institute on the esters of phosphoric acid and the enzyme phosphatase and the part they play in bone metabolism. The Moxon gold medal, awarded every third year to the person who should be deemed to have most distinguished himself by observation and research in clinical medicine, was awarded to Prof. G. R. Minot, M.D., of Boston, Massachusetts, for his valuable work on diseases of the blood. The Weber-Parkes prize and medal for the best work already done in connexion with the ætiology, prevention, pathology, or treatment of tuberculosis in this country or abroad was awarded to Sir John McFadyean, M.B., late principal of the Royal Veterinary College. The Leverhulme scholarships held by Dr. J. F. Brock and Dr. S. J. Hartfall were continued for another year, and the Murchison scholarship was awarded (this year by the University of Edinburgh) to D. F. M. Batty, M.B., and Alexander Brown, M.B.

The following appointments were announced: Dr. James Collier as Harveian orator, 1934 (the forthcoming Harveian oration in October next will be delivered by Sir Thomas Lewis); Dr. J. H. Sheldon as Bradshaw lecturer, 1934; Dr. H. L. Tidy, as Lumleian lecturer, 1934; Prof. E. C. Dodds as Goulstonian lecturer, 1934; Dr. C. H. Andrewes as Oliver-Sharpey lecturer, 1934; *Sir Humphry Rolleston, as FitzPatrick lecturer,* 1934 and Dr. E. I. Spriggs as Croonian lecturer, 1935.

Sir George Newman and Dr. J. W. McNee were re-elected representatives of the College on the executive committee of the Imperial Cancer Research Fund, and Sir William Willcox was elected representative on the advisory committee, to be termed "The Poisons Board," under the Pharmacy and Poisons Act, 1933. Dr. R. D. Gillespie was appointed to represent the College at the third biennial conference on Mental Health to be held by the National Council of Mental Hygiene in November next.

The following candidates were admitted Members of the College:—

Patrick Clarence Anderson, M.B. N.Z.; Baij Nath Bhandari, M.D. Durh.; Anthony Curtis Byles, M.B. Lond.; Alan Barham Carter, M.B. Camb.; Bankat Chandra, M.B. Bomb.; Idris Davies, M.D. Lond.; Pierre Marcel Daville, L.R.C.P.; John Harold Follows, M.D. Liverp.; George Giglioli, M.D. Pisa; Richard Withers Gilmour, M.B. Durh.; Myer Jacob Gordon, M.D. Belf.; Edward Emile Delisle Gray, M.D. Lond.; William Pickup Greenwood, M.D. Lond.; Eric Hamilton Hudson, M.B. Camb.; Alexander Henderson Imrie, M.B. Glasg.; Beatrice Mary Joly, M.B. Lond.; Emyr Wyn Jones, M.D. Liverp.; Ronald Arthur Jones, M.B. Camb.; Charles Herbert King, M.B. N.Z.; William Lennon, M.D. Belf.; John Charles Joseph McEntee, M.D. Dub.; John Angus McLean, M.D. Melb.; Sher Mohomed Mallick, M.B. Punjab; Achanvittil Krishna Menon, M.B. Madras; Arthur William Morrow, M.B. Sydney; Robert Pierret, M.D. Lyons; Russell John Reynolds, C.B.E., M.B. Lond.; Hyman Solomon Roseman, M.D. Dub.; Norman Lloyd Rusby, M.B. Oxf.; William Walters Sargant, M.B. Camb.; Ramchandra Vishwanath Sathe, M.D. Bomb.; James Tate, M.B. Belf.; John Wakefield de Witt Gray Thornton, M.B. *Oxf.*; Ronald Ernest Tunbridge, M.B. Leeds; Kailash Nath Waghray, M.B. Lucknow; Leigh Thornton Wedlick, M.B. Melb.; and Paul Hamilton Wood, M.B. Melb.

Licences to practise were conferred upon 143 candidates (124 men and 19 women) who have passed the final examination of the Conjoint Board, and have complied with the by-laws of the College. The following are the names and medical schools of the successful candidates:—

R. M. H. Anning, St. Mary's; Mary C. S. Aquino, Bombay; T. P. Ayre, Durham; F. H. Barber, Birmingham; G. A.

Barker, King's Coll.; J. Bayley, St. Thomas's; R. B. Bell, Middx.; L. J. Beynon, St. George's; R. W. Billington, Camb. and Westminster; M. J. Boering, London; Beryl Bolton, Royal Free; A. R. Boney, St. Bart.'s; F. M. Braithwaite, Camb. and Manchester; P. S. Buckley, Oxford and London; E. G. L. Bywaters, Middx.; W. R. Cambridge, Bristol; J. P. Child, Oxford and St. Thomas's; G. R. Clarke, Birmingham; R. D. Clay, King's Coll.; L. Z. Cosin, Guy's; S. W. Croome, King's Coll.; P. N. Cutner, Edinburgh; Hilda M. S. Davidson, King's Coll.; J. H. Dixon, St. Thomas's; H. E. Dunstan, Durham; O. G. Edholm, St. George's; E. P. Edmonds, Oxford and London; L. R. L. Edwards, Guy's; P. R. Evans, Manchester; S. M. Evans, Camb. and St. Thomas's; E. C. Fernandes, King's Coll.; T. Fichardt, Guy's; C. Fletcher, St. Bart.'s; J. M. Flower, Westminster; T. Foulds, Manchester; N. W. Gardener, Guy's; R. G. B. Gilbert, St. Thomas's; H. Goldfarb, Univ. Coll.; M. S. Good, Oxford and St. George's; W. E. F. Gough, Camb. and Leeds; J. Grocott, Guy's; S. J. Hadfield, St. Bart.'s; J. G. Hailwood, Liverpool; R. V. Harris, St. Bart.'s; V. E. L. Hart, London; K. J. Harvey, St. Bart.'s; J. D. Hay, Camb. and Liverpool; Dorothy J. Healey, Royal Free; A. A. Heathcote, Camb. and St. Bart.'s; A. Hemming, Birmingham; S. Henderson, Liverpool; C. V. A. Henriques, King's Coll.; E. C. Herten-Greaven, Camb. and London; F. G. Hinks, Camb. and St. Thomas's; R. H. K. Hope, Univ. Coll.; Doris I. Howell, Cardiff and Charing Cross; E. T. Hudson, Charing Cross; J. Hughes, Coventry and Warwickshire Hosp.; W. R. Hunter, Liverpool; D. A. J. Hunwick, Bristol; H. G. Hutton, Camb. and London; H. V. D'A. Iles, Guy's; Margaret H. James, Univ. Coll.; H. G. John, Cardiff and Univ. Coll.; Elsie E. Johnson, Royal Free; W. A. Johnson, St. Mary's; G. F. Jones, Cardiff and St. Mary's; O. G. Jones, Cardiff; V. D. Jones, Univ. Coll.; C. W. C. Karran, Camb. and St. Thomas's; F. W. H. Kent, King's Coll.; E. W. Kinsey, Cardiff and London; Madeline E. E. Knowlson, Westminster; C. E. Langley, London; A. G. Leigh, Liverpool; F. X. Letellier, Univ. Coll.; R. I. Lewis, Cardiff and London; Louisa A. Loder, King's Coll.; M. J. McCormack, London; D. B. McGavin, Camb. and St. Bart.'s; L. G. Mackenzie, Guy's; J. D. P. Macpherson, St. Thomas's; J. N. Majumdar, Calcutta and Middx.; T. O. Mason, St. Bart.'s; W. H. Mason, Middx.; G. J. H. Maud, Camb. and Univ. Coll.; J. T. Mendoza, Manchester; K. S. Menon, King's Coll.; F. C. Moll, Westminster; Mildred A. Morgan, Cardiff; G. T. L. F. Morris, Birmingham; G. K. Mulki, Bombay and Middx.; C. R. Naidu, Bombay and St. Bart.'s; S. D. J. Nand, Punjab and Manch.; Eileen A. Neilson, Univ. Coll.; W. F. Nicholson, Camb. and Manchester; F. A. Nicolai, Guy's; F. J. O'Dowd, Birmingham; W. M. Oxley, St. Bart.'s; Emma D. N. Part, Birmingham; H. S. Pasmore, Univ. Coll.; E. Pereira, St. George's; R. C. Percival, Sydney and London; R. R. Prytherch, Camb. and King's Coll.; G. Qvist, Univ. Coll.; A. M. Rackow, King's Coll.; C. Raman, Madras and London; Winifred H. Redmond, King's Coll.; R. S. Richmond, Camb. and St. Mary's; G.. C. D. Roberts, Camb. and St. Thomas's; I. G. Robin, Camb. and Guy's; Marjorie C. A. Robson, Camb. and Birmingham; Christine M. Rooke, Univ. Coll.; J. A. Ross, Camb. and Liverpool; Margaret H. Scott, Royal Free; T. Seager, Liverpool; S. K. Sen, Camb. and St. Bart.'s; A. L. Secchi, St. Thomas's; A. Shatz, Cardiff; Freni M. Shaw, Royal Free; T. W. Smailes, Camb. and Leeds; J. A. Squire, St. Bart.'s; W. G. Stanford, Guy's; W. P. Stevens, Birmingham; L. J. Stoll, Guy's; J. N. Strauss, Manchester; V. A. J. Swain, St. Bart.'s; Mary G. Tate, Royal Free; D. M. E. Thomas, Cardiff and St. Bart.'s; H. B. Thomas, Camb. and St. Thomas's; R. W. H. Thomas, St. Mary's; J. R. Vaid, Lahore and St. Bart.'s; J. A. Vermylen, Univ. Coll.; E. O. Walker, Camb. and Bristol; M. L. Walt, Cape and Guy's; R. A. L. Wenger, Camb. and St. Bart.'s; C. J. G. White, Camb. and Middx.; J. L. Wightman, Camb. and Leeds; M. R. P. Williams, Cardiff; V. H. Wilson, Camb. and St. George's; J. C. Winteler, King's Coll.; Elma Wolmarans, Royal Free; and R. M. Yeo, Camb. and St. Thomas's.

Diplomas in special subjects were granted jointly with the Royal College of Surgeons to the candidates whose names appeared on p. 218 of our issue of July 22nd.

The College will be closed for cleaning from Thursday, August 3rd, to Saturday, Sept. 16th, both days inclusive.

Society of Apothecaries of London

At recent examinations the following candidates were successful:—

Surgery.—E. V. Bevan and R. F. Fleming, St. Mary's Hosp.; T. von Haebler, Royal Free Hosp.; L. R. Jain, Univ. of Birmingham; J. E. Morrish, St. Mary's Hosp.; H. Owen, Univ. of Oxf. and St. Mary's Hosp.; W. C. M. Scott, Univ. of Toronto; and F. H. Williams, Univ. of Sheffield.

Medicine.—J. L. Cope, Univ. of Cambridge and Westminster Hosp.; J. B. Frumin, Guy's Hosp.; L. I. F. Kerridge and W. C. M. Scott, Univ. of Toronto.

Forensic Medicine.—N. C. London, Univ. of Cambridge and St. Mary's Hosp.; H. N. Levitt and T. Morgan, Guy's Hosp.; W. C. M. Scott, Univ. of Toronto; D. A. Smith, Univ. of Cambridge and St. Mary's Hosp.; and H. B. Thornton, Guy's Hosp.

Midwifery.—A. C. E. Cole and R. F. Fleming, St. Mary's Hosp.; J. Lipschitz, Westminster Hosp.; B. S. Minden, St. George's Hosp.; W. C. M. Scott, Univ. of Toronto; A. L. L. Silver, London Hosp.; and G. L. R. Tapsall, St. Mary's Hosp.

The following candidates, having completed the final examination, are granted the diploma of the society, entitling them to practise medicine, surgery, and midwifery: E. V. Bevan, J. L. Cope, J. B. Frumin, L. R. Jain, J. E. Morrish, H. Owen, W. C. M. Scott, and F. H. Williams.

University of London

At recent examinations the following candidates were successful:—

M.D.

Branch I. (Medicine).—K. V. Edwards, Univ. Coll. Cardiff and Univ. Coll. Hosp.; P. R. Graves, St. Thomas's Hosp.; *A. S. Hoseason, St. George's Hosp.; A. T. Lock Kingdon, Univ. Coll. Hosp.; Moyra I. Macnaughton-Jones, London (R.F.H.) School of Medicine for Women; J. H. G. Mason, Middlesex Hosp.; Joseph Mindline, Westminster Hosp.; P. McG. Moffat, Guy's Hosp.; G. H. Newns, King's Coll. Hosp.; A. P. M. Page, St. Bart.'s Hosp.; H. E. Reburn, King's Coll. Hosp.; J. H. O. Roberts, St. Bart.'s Hosp.; T. S. Rodgers, Westminster Hosp.; E. G. Thomas, Univ. Coll. Cardiff and Univ. Coll. Hosp.; F. H. W. Tozer, London Hosp.; J. R. Tree, Middlesex Hosp.; J. H. Watkin, St. Bart.'s Hosp.; and †G. P. B. Whitwell, Guy's Hosp.

Branch II. (Pathology).—H. A. Harris, Univ. Coll. Hosp.

Branch III. (Psychological Medicine).—C. E. Allen, Guy's Hosp.; N. G. Harris, St. Thomas's Hosp.; and J. R. A. Madgwick, London Hosp.

Branch IV. (Midwifery and Diseases of Women).—Gwendoline E. Austin, King's Coll. Hosp.; Rosa E. Chamings, London (R.F.H.) School of Medicine for Women; L. G. Housden, Guy's Hosp.; Beatrice M. Joly, London (R.F.H.) School of Medicine for Women; Eileen M. King, Univ. Coll. Hosp.; and Margaret I. Neal, London Hosp.

Branch VI. (Tropical Medicine).—E. M. Wijerama, London School of Hygiene and Tropical Medicine and Univ. Coll. Hosp.

* University Medal.

† Awarded a Mark of Distinction.

Paddington Medical Society

On Tuesday, August 15th, at 9 P.M., at the Great Western Royal Hotel, Paddington, Mr. R. Y. Paton will give a lecture on common disabilities of the foot and their treatment.

Royal Medico-Psychological Association

Gaskell prize and medal.—In our issue of July 15th (p. 145) it was stated that this prize and medal had been awarded to Dr. Desmond Curran, and that Dr. L. Minski had received an additional medal. We are informed that the essays of Dr. Curran and Dr. Minski were considered equal in merit; a gold medal was awarded to each of them, and the prize was equally divided.

Post-graduate Courses in Berlin

A course on the practical results of modern investigation of internal disorders will be held at various centres in Berlin from Oct. 2nd to 14th. The lecturers will include Prof. Bergmann (Charité), Prof. Schilling (Moabit), Prof. Munk (Martin Luther), and Prof. Cobet (the sanatorium at Beelitz). Detailed programmes of this and other courses may be had from the Geschäftsstelle der Dozentenvereinigung für ärztliche Fortbildung, Kaiserin Friedrich-Haus, Robert Koch-Platz 7, Berlin, N.W.7.

British College of Obstetricians and Gynæcologists

The quarterly meeting of the council was held on July 24th, with Dr. J. S. Fairbairn, the president, in the chair. The following officers were re-elected: President, Dr. Fairbairn. Vice-presidents, Dr. H. Russell Andrews and Sir Ewen Maclean. Hon. treasurer, Mr. Eardley Holland. Hon. secretary, Prof. W. Fletcher Shaw. Hon. appeal treasurer, Mr. Comyns Berkeley. Hon. librarian, Mr. A. E. Giles. Hon. assistant librarian, Mr. Frederick Roques.

Dr. W. F. T. Haultain (Edinburgh) was promoted to the Fellowship of the College and the following were elected to the Membership:—

Alexander Allan (Manchester), Lieut.-Colonel H. C. Buckley (India), John Barnard Blaikley (London), Harold Carter (London), Robert [illegible]s (London), John Douglas Flew [illegible] (London), John Stewart Henry [illegible]arns (Montreal), Major G. H. [illegible] (South Africa), William George [illegible] Mitchell (Bath), Margaret Mary [illegible]pott (Montreal), Edwin Moody Robertson (Edinburgh), Walter Salisbury (Northampton), Roy McGregor Saunders (London), Walter Netley Searle (New Zealand), George Drury Shaw (South Africa), Donald R. L. Stevenson (New Zealand), Henry J. Thomson (Bellshill, Lanark), Beatrice Turner (London), John Ross Vant (Canada), Blake H. Watson (Canada).

The president formally admitted to the Membership Dr. Keith Duff (London) and Dr. William Smith O'Loughlin (Romford).

Sir Kedarnath Das was elected chairman of the Indian reference committee in the place of Lieut.-Col. V. B. Green-Armytage, who has returned to England.

London School of Hygiene and Tropical Medicine

The nine months' course of study for the diploma in public health begins at this school on Oct. 2nd. The Fishmongers' Company studentship, entitling the holder to free tuition for the whole course, is open for competition among European students who hold a medical qualification registrable with the General Medical Council. The subject of the examination, which will be held at the school on Sept. 20th–21st, is Hygiene, within the scope of the London third M.B. Applications must be received by the secretary of the school (Keppel-street, W.C. 1) by Sept. 16th.

Instruction for D.P.H.

The medical officer of health to the London County Council announces that a three months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Western Hospital, Lawn-road, Hampstead, N.W., by Dr. Alexander Joe, the medical superintendent, on Mondays and Wednesdays at 9.30 A.M. and alternate Saturdays at a time to be arranged, beginning on Monday, Oct. 2nd. A similar course will be given at the Brook Hospital, Shooter's-hill, Woolwich, S.E., by Mr. J. B. Byles, the medical superintendent, the dates and times being the same. Applications should be made to the medical officer, public health department (special hospitals), the County Hall, London, S.E.1.

Institute of Medical Psychology

This institute (formerly the Tavistock Clinic) has issued the programme of a post-graduate course in psychotherapeutic theory and method. The main course, covering a year's work, will begin on Oct. 2nd, and is arranged for two groups; those who can give only three hours twice a week, and those who can give a minimum of 12 hours in the week. There will be a five weeks' introductory course of lectures which may be taken separately by medical practitioners. The systematic lectures throughout the year (without discussion or other work) are also open to post-graduates who have not entered for the full course. Particulars of these and other arrangements may be had from the hon. lecture secretary at the institute, 6, Torrington-place, London, W.C. 1.

Chartered Society of Massage and Medical Gymnastics

This society, of which Lord Moynihan is president, is holding its annual congress from Sept. 18th to 23rd, at University College, Gower-street, London. Those giving lectures or demonstrations will include Dr. J. B. Mennell, Dr. W. L. Watt, Dr. J. F. Wilkinson, Dr. Justina Wilson, Dr. W. M. Crofton, Sir Harold Gillies, Mr. R. C. Elmslie, Mr. George Perkins, Dr. Alice Hutchison, Dr. Vincent Coates, Mr. Norman Dott, Dr. Rupert Waterhouse, Dr. Isaac Jones, Dr. W. J. Turrell, Dr. Wanless Dickson, and Dr. Geoffrey Holmes. Dr. E. D. Adrian, F.R.S., will give the founders' lecture on Muscle Tone. The meetings are open to medical practitioners, and cards of admission, together with vouchers for reduced railway fares if required, may be had from the congress secretary at the society's offices in Tavistock House (North), Tavistock-square, London, W.C. 1.

The Scottish Health Services

The first meeting of the committee which has
appointed to inquire into the policy and organi
of the Scottish health services was held in Edinbu
July 28th with Sir John Dove-Wilson, K.C., in the
Mr. John Jeffrey, Secretary of the Department of H
who represented the Secretary of State, pointed ou
the development of the services had been more c
haphazard, and it was im [illegible]
a common structure desi [illegible] a central
The stocktaking whic [illegible] was
embark on had become [illegible] doubts
in fact they were devel [illegible] and w
they were doing their [illegible] ective
economical manner. S [illegible]
be lagging behind the [illegible] ledge
prevention and treatme [illegible]
prevention. A number of [illegible] le
were also emerging—e.g., practitioner to the statutory health services, and the future of poor-law medical service—and these would not be determined until the aims and lines of development were clear. The terms of reference are to "review the existing health services in Scotland in the light of modern conditions and knowledge, and to make recommendations on any change in policy and organisation that may be considered necessary for the promotion of efficiency and economy." After a general discussion, the committee adjourned until October.

Metropolitan Hospital Sunday Fund

This year the fund amounts to £64,200, a decrease of about £2000, and the committee of distribution last week decided to pay out £64,000; the number of applicants was 249. The principal grants were: London Hospital, £5230; St. Thomas's, £2700; Middlesex and Convalescent Home, £2550; University College, £2400; Hampstead and North-West London, £2340; Royal Free, £2100; St. George's, £2000; Royal Northern, £1920; King's College, Seamen's, and St. Mary's, £1560 each; Westminster, £1300; Charing Cross, £1260; West London, £1250; Brompton, £1040: Queen Mary's, West Ham, £1020; and St. Bartholomew's, £1000.

Medicine and Athletics

The Italian Federation of Doctors versed in the Treatment of Athletes is holding an international conference at Turin from Sept. 6th to 9th. Physical and athletic instructors as well as medical men are invited to take part, and communications may be made on any subject related to medical aspects of sport. Contributions should be sent in advance, together with brief summaries in French or Italian which will be read to the congress and afterwards distributed. There will be no fee for participation, and reduced fares will be granted on the Italian railways. Particulars may be had from the Extraordinary Commissioner, Prof. Ugo Cassinis, via dello Stadio 14, Rome.

Appointments

BOYD, MARJORIE R. E., M.B., B.Ch. Dub., has been appointed Resident Medical Officer, Horton General Hospital, Banbury.

HARRISON, L. F. A., L.R.C.P. Lond., M.R.C.S., Surgeon under the Factory and Workshop Acts for Farningham, Kent.

MIDDLETON, J. C., M.B., Ch.B. Glasg., Medical Referee under the Workmen's Compensation Act, for cases of Industrial Disease arising in the Sheriff Courts of Ayr, Kilmarnock, Glasgow, &c.

Births, Marriages, and Deaths

BIRTHS

CHITNIS.—On July 27th, at White-Cross House, Birmingham, the wife of C. N. Chitnis, M.R.C.S., L.R.C.P., of a daughter.

COPEMAN.—On July 27th, at Welbeck-street, W., the wife of Dr. William S. C. Copeman, of a daughter.

LAWSON.—On July 28th, at Westminster-road, Leicester, the wife of Dr. D. Forbes Lawson, of a son.

MCCURRICH.—On July 28th, at Devonshire-place, W., the wife of H. J. McCu [illegible] S., F.R.C.S., of Hove, Sussex, of a son.

DEATHS

[illegible]—On Jul [illegible] Carshalton, Arthur Zell Claydon
, M.R. [illegible] on-road, Wallington.

[illegible] At the [illegible] Royal Infirmary, on July 30th,
Edwi [illegible] O.B.E., M.R.C.S., L.R.C.P.
, Friar [illegible] aged 75 years.

[illegible] on J [illegible] a brief illness, Wi [illegible] Harvey
, M. [illegible] House, Ilmin [illegible] rset,
yea [illegible]

[illegible] July [illegible] ng-home in L [illegible] lonel
Su [illegible] D.S.O., lat [illegible]

[illegible] Stanhope, [illegible] on,
M.D. [illegible]

[illegible] Lodge [illegible] c,
W [illegible]

[illegible] of

NOTES, COMMENTS, AND ABSTRACTS

MEDICAL BENEVOLENCE IN YORKSHIRE

THE Medical Charitable Society for the West Riding of the County of York, which was founded in 1828, has just held its 105th annual meeting at Doncaster under the chairmanship of Dr. Glover. The society now has 1182 members. Its objects are to help (*a*) any member who is disabled by illness or accident or age, and who has not adequate means of support; (*b*) the widow or children of a deceased member who may at any time require assistance; (*c*) the mother of any member, being a widow (or the sister, being single or a widow), who had acted as his housekeeper for a period of not less than five years immediately preceding his death, and who may at any time require assistance; and (*d*) in the education of the children of members disabled by illness, accident or age or of deceased members, who at any time may require assistance for this purpose.

The society is definitely a charity, and no member can claim any right in respect of his subscription nor can those whom he has left do so; but what is much better, they can with confidence feel that their requests for assistance will come before a sympathetic body of the members of the profession who are anxious to do what can properly be done in each case. It will be noted that in the framing of the rules it has not been forgotten that the children of deceased members may have been comfortably left off, and yet that after many years they may fall upon evil times. In illustration of this, a grant of £50 was this year made to the son of one of the members who died no less than 50 years ago. Last year a note was added to the clause dealing with the education of children which enables the society to make a grant to Epsom College to help the fund devoted to establishment of foundation scholarships. This was done as a direct result of the alteration in the rules of the college whereby the selection of suitable candidates for these scholarships will in future lie with a special committee consisting of representatives of the council along with an equal number of governors who are not members of that body. Two grants of £50 have already been made to the funds of the College under this rule, and it is the hope of those who suggested the alteration in the rule that for many years this or a larger sum may be voted at the annual meetings.

Thanks to the care which has always been exercised in the management of the finances of the society, it has always been found possible to meet all reasonable appeals for help and yet to increase its investments. By June, 1933, no less a sum than £89,174 had been given in grants, and at the recent meeting the amount voted for the year now current was £2092.

Though the membership of the society steadily increases (for in 1921 it was 862 and now, as has been mentioned, it amounts to 1182), those who are responsible for the working of the society, and who are best acquainted with its merits, feel that the numbers should be much greater than they are. Particulars of the work of the society may be obtained from Dr. Wardrop Griffith, of Leeds.

HEALTH AND STILL MORE HEALTH

Colonel P. S. Lelean's address as promotor at the Edinburgh University medical graduation on July 19th was divided into retrospect and prospect. Examining his hearers' future he pictured them looking down on a stream of human life, which perhaps they might succeed in diverting from its course. He pleaded for eugenics at the beginning and euthanasia at the end of life, and urged the paramount necessity for health throughout the intervening period.

> "Essential education the child must obviously have, but no less obvious, and more imperative, is its need for sun and freedom. How much of what is taught is really essential? When the school curriculum only allots 5 per cent. of its time to instruction in the citizen's first duty—being fit—there is evident need for clearance of much educational flotsam to clear the way for the universal teaching of physiology—the knowledge of how to live. No rattling of dry bones in the youngsters' ears can ever compensate their loss of sun and breeze, of adventure and quietude. When you—as family doctor—are consulted at each term's end as to the children's 'nervous irritability' (alias gross overwork), then is your chance to put an honest foot down hard upon the tenderest corn adjacent—you know whose! Why not a six-hour day, and no night-work, for school-children as for hefty miners and mature industrialists; why not submission of school curricula for visa by the Ministry of Health, pending the education in physiology of all educationalists?"

Who will provide the recreation essential for adolescents when their industrial day's work is done, Dr. Lelean asked. At present only one of four of them belongs to any organisation attempting to provide outlets for their spare-time energies; although modern youth asks nothing from age but opportunity—something to do worth doing, and the happiness that comes from doing it.

At 40 there are two classes—the quick, and the ambulatory, who describe themselves apologetically as middle-aged.

> "But middle age is not a state: if anything, it is a preventable disease. Its prodromal sign is loss of football boots at 20; at 30 the patient never runs save for 'bus or for stile; at 40 he is a played-out neurotic; and at 50 he remarks hypochondriacally, and perhaps truly, that he were better dead. If given the exercise it wanted, that gallant heart of his would have gone all out for nine hours a day to the end, and have kept the blight of middle-age from even nonagenarian youth."

EUGENICS IN WONDERLAND

THE term "eugenic colony" recalls the visions of the future which afflict Mr. H. G. Wells: hygiene, health garments, and an insufferable air of physical and spiritual superiority among the inhabitants. We have Mr. C. Wicksteed Armstrong's word for it,[1] however, that things would not be as bad as that. He proposes that a eugenic colony should be founded in South America, upon the Santa Catharina Plateau, and if this paradise is all he claims for it he is likely to be the founder of an overcrowded slum area, because of the press of applicants. The climate is temperate and the plateau is still clothed in virgin forest, consisting of pine trees, cedars, walnut, cinnamon, and mahogany. Rainfall is abundant. There are no endemic diseases, and the settlers—of whom there are at present only eight to the square mile—are sturdy and well fed. They spend their first year or two, on arrival, in cutting down trees, and selling the hardwood to sawmills at a rate which more than repays the cost of the land. Then they plant maize and potatoes, and later fruit trees. The ground is so fertile that nearly all fruits of subtropical and temperate countries do well, and the settler is able to augment his diet with grapes, apples, pears, peaches, apricots, plums, mangoes, pineapples, oranges, lemons, and—if he happens to have founded his homestead on the lowlands near the coast and not on the highlands—bananas. Land is cheap; 62½ acres can be bought for anything from £25 to £100. Nor are the neighbours likely to prove objectionable in this remarkable place. Most of them are German, of a kindly Anglo-Saxon type, who welcome the thought of English immigrants; the remaining settlers are Italian. Mr. Armstrong wants to import families of the best English farming stock, free from hereditary defect and in robust health, who will undertake to have as many children as nature and their means permit. After farmers he would favour carpenters, electricians, builders, mechanics, school-masters, and musicians. Doctors are not mentioned, presumably because their services will not be required.

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[1] Eugenics Review, July, 1933, p. 91.

Mr. Armstrong believes that when civilisation has been wrecked in the next war, eugenic colonies founded in our time, may well become the refuge of civilisation and culture. This prophecy recalls the fate of the cities of the plain, and those of us who are willing to be warned in time can offer to support his proposal.

MASSAGE AND MEDICAL GYMNASTICS

Miss Goodall-Copestake's text-book[1] which has been further enlarged and improved in a new edition, will be of interest to doctors as well as to massage and gymnastic students. Extra chapters on kinesiology and muscle re-education have been included, at the expense of the earlier section of war injuries. Some old fallacies of technique remain uncorrected, such as the insistence of hip-rolling in one direction only. A reversal of direction within the same range of movement can surely not be considered "injurious." The wrist-grip for pronation and supination of the forearm (shown by plate) interferes with the freedom of the movement. The wrist can be steadied by the forefinger of the operator's right hand. The section on the treatment of scoliosis is too general to be of real help, and the description of lordosis is very slight. In many of the pathological conditions more stress is laid upon medical rather than remedial treatment, and though some knowledge of this may be of value to the massage student, space could be better used in stimulating her interest in the possibilities of her own technique. But these minor criticisms apart, the book is a welcome and useful contribution to the literature of massage and medical gymnastics.

A DISCLAIMER.—Mr. Norman Haire writes to disclaim responsibility for a description of himself as "the eminent gynæcologist," which appeared in an advertisement of a book to which Mr. Haire contributed a preface. He has instructed the publishers to delete the offending description of himself from future advertisements.

THE BED-BUG.—Fleet-surgeon W. E. Home writes in reference to our annotation of July 8th (p. 88): "An experienced pharmacist in Canada, who owned houses he had built and rented, told me once of his trials with tenants who had introduced bugs, against which infestation he had used many methods without complete success until he plastered up all cracks with ung. hydrarg., after which he heard no more complaints."

ROAD ACCIDENTS IN LONDON.—In the course of a letter sent on behalf of the Pedestrians' Association Mr. T. C. Foley writes: "It is officially announced that during the first six months of 1933 there were 73 more people killed and 1877 more injured in the metropolitan police area than during the corresponding period of 1932. This statement must cause the gravest public concern, coming as it does two and a half years after the introduction of the Road Traffic Act, the purpose of which was to reduce accidents. That Act sought to reduce accidents by abolishing the speed limit and by increasing the penalties for dangerous driving. But that the Act has failed in its purpose must now be obvious to all. Observations show that the speed at which cars are driven has increased by 10 or 15 miles an hour in the last three years, demanding a much greater degree of skill on the part of the driver (for which the Act failed to make any provision), and a much higher standard of judgment in crossing roads on the part of the pedestrian. . . . Let the Government accept the advice already tendered to the Royal Commission on Transport by the Commissioner of Police for the Metropolis for a speed limit for the metropolitan area, sternly enforced. Every unprejudiced, disinterested observer, whether motorist or pedestrian, knows that excessive speed is the main cause of these accidents."

Vacancies

For further information refer to the advertisement columns

Aberdeen, Kepplestone Nursing Home.—Radiologist for X Ray Dept.

Aberdeen Royal Hospital for Sick Children.—Hon. Asst. Radiologist.

Bagdad, Royal College of Medicine.—Six Professorships.

Bath, Royal United Hospital.—H.P. At rate of £175.

Belfast, Queen's University.—John Dunville Research Fellowship in Experimental Pathology. £350–£500.

Birkenhead Infirmary.—Res. M.O.'s. Each £300.

Blackburn Royal Infirmary.—Fourth H.S. £150.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.P. At rate of £120.

Bootle General Hospital.—H.P., 2 H.S.'s, and Cas. O. Each at rate of £150.

Bradford, Municipal General Hospital, St. Luke's.—H.P.'s and H.S.'s. Each at rate of £150.

Brentwood, Essex, High Wood Hospital.—H.P. At rate of £80.

Bristol, Ham Green Hospital and Sanatorium.—Jun. Asst. Res. M.O. £250.

Buxton, Devonshire Hospital.—Asst. H.P. At rate of £150.

Cardiff, King Edward VII. Welsh National Memorial Association.—Three half-time Asst. Tuber. O.'s. Each at rate of £250. Also Two Jun. Asst. Res. M.O.'s for N. Wales Sanatorium and Glan Ely Tuberculosis Hospital. Each £250.

Cardiff Royal Infirmary.—Hon. Asst. Physician.

Colonial Medical Service.—M.O.'s in the West African Medical Staff. Each £660.

Coventry and Warwickshire Hospital.—H.S. £125.

Derby, Derbyshire C.C.—Asst. Maternity and Child Welfare M.O. £600.

Doncaster Royal Infirmary.—H.P. At rate of £175.

Durham County Mental Hospital.—Asst. M.O. £350.

Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.

Exeter City.—Deputy M.O.H. and Asst. Tuber. O. £600.

Golden-square Throat, Nose and Ear Hospital, W.—Hon. Anæsthetist, Hon Registrar, and Hon Asst. Surgeon.

Great Yarmouth General Hospital.—H.S. £140.

Greenwich Metropolitan Borough.—Tuber. O. for Council's Dispensary and Asst. M.O.H. £750.

Hastings, Royal East Sussex Hospital.—Hon. Asst. Surg.

Ilford, King George Hospital.—Asst. Ophth. Surgeon. Also H.S. £100.

Ipswich, East Suffolk and Ipswich Hospital.—H.S. £120.

Liverpool Open-air Hospital for Children, Leasowe.—Jun. Res. M.O. £200.

Liverpool, Walton Hospital.—Pathologist. £750.

Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.

Manchester Babies Hospital, Burnage-lane, Levenshulme.—Hon. Asst. Physician.

Manchester Northern Hospital for Women and Children, Park-place.—Sen. and Jun. H.S.'s. £130 and £100 respectively.

Manchester, St. Mary's Hospitals.—H.S. for Whitworth Park Hospital. At rate of £50.

Nottingham General Hospital.—H.S. for Ear, Nose and Throat Dept. At rate of £150.

Plymouth City Hospital.—Res. M.O. £350.

Princess Beatrice Hospital, Richmond-road, Earl's-court, S.W.—Sen. Res. M.O. £150.

Queen's Hospital for Children, Hackney-road, E.—H.S. and Cas. O. Each at rate of £100.

Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.

Royal Eye Hospital, St. George's-circus, Southwark, S.E.—H.S. and Asst. H.S. At rate of £150 and £100 respectively. Also Hon. Phys.

Royal Northern Hospital, Holloway, N.—Obstet. H.S. At rate of £70.

St. Bartholomew's Hospital, E.C.—Dental H.S. £80.

Salisbury, General Infirmary.—H.P. At rate of £150.

Shrewsbury, Royal Salop Infirmary.—Res. H.P. At rate of £160.

Southampton Free Eye Hospital.—Locum Tenens Ophth. H.S. 6 gns. a week.

South Shields, Ingham Infirmary.—Sen. and Jun. H.S. £200 and £150 respectively.

Sutton, Sutton and Cheam Hospital.—Res. M.O. At rate of £150.

Tunbridge Wells and Counties General Hospital.—H.S. £160.

Virginia Water, Surrey, Holloway Sanatorium.—Jun. Asst. M.O. £350.

Wakefield, Middleton-in-Wharfedale Sanatorium.—Jun. Res. M.O. £250.

Wakefield, West Riding of Yorkshire Mental Hospitals Board.—Three Med. Supts. £1000–£1400.

Warrington County Mental Hospital, Winwick.—Asst. M.O. £500.

Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150

Westminster Hospital, Broad Sanctuary, S.W.—Wander Scholarship in Diseases of Children. £250.

Weston-super-Mare, General Hospital.—Res. M.O. £150.

Wigan Royal Infirmary.—H.S. At rate of £150.

The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Amersham, Buckingham.

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the [illegible] ications from Liverpool County [illegible] . Home Office, surgeons should reac [illegible] th. Whitehall, London, [illegible]

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[1] Theory and Practice of Massage and Medical Gymnastics. Fifth edition. By B. M. Goodall-Copestake. London: H. K. Lewis and Co., Ltd. 1933. Pp. 332. 12*s.* 6*d.*

ADDRESSES AND ORIGINAL ARTICLES

HÆMATEMESIS *

By Maurice E. Shaw, M.D. Oxf., M.R.C.P. Lond.

ASSISTANT PHYSICIAN AND VICE-DEAN OF THE POST-GRADUATE COLLEGE, WEST LONDON HOSPITAL

I have long been impressed by the fact that, although hæmatemesis is very frequently met with in the medical wards of a general hospital, in a large proportion of these cases no final diagnosis is made. It is common enough for a man or woman to be admitted with a large hæmatemesis. There may or may not be a history of dyspepsia; if there is, it is often vague, quite unlike the precise story of a chronic peptic ulcer. These patients generally get better quickly and are usually submitted to radiological examination within three weeks or so of their admission. If chronic ulcer, whether gastric or duodenal, were the common lesion in these patients one would expect to find a high proportion of them showing radiological signs of the disease. It is true that they have, as I have said, some three weeks in which to recover from the lesion which has caused their hæmorrhage, but experience shows that chronic peptic ulcers rarely heal in so short a time, and we should, I think, be justified in expecting a high proportion of positive ulcer findings from the radiological department. This has not been my experience, and I have therefore been led to the conclusion that chronic peptic ulcer is not as common a cause of hæmatemesis as has been supposed.

Personal experience is often misleading, and I have endeavoured to support my own opinion on the causes of hæmatemesis both by the records of this hospital and by the writings of other authors. I have ascertained that during the year 1932 28 cases were admitted to this hospital with a history of hæmatemesis. Of these, only 10 were found to be suffering from gastric ulcer, 2 from duodenal ulcer, and 2 from jejunal ulcer, while in as many as 11, or 39 per cent. of the whole, no cause could be found for the hæmorrhage.

Gutman and Demole[1] have recently reported a series of 100 cases admitted to the surgical clinic at the Salpêtrière in Paris for hæmatemesis. Of these only 19 were proved to have ulcers, while 21 had to be recorded as "undetermined" after the most minute investigation. A still larger series was reported last year by Rivers and Wilbur[2] from the Mayo Clinic in America. Out of 668 cases admitted for hæmatemesis in 1927 and 1928, a definite cause was allocated to all but 22 which gave an "ulcer history," but in which no evidence of ulcer could be found on radioscopic examination. It is very dangerous, however, to compare statistics from different sources, even though they appear to be dealing with exactly the same subject.

At first sight it would appear that the Americans are better diagnosticians than the French or English, for the former have admitted failure in diagnosis in a very small proportion of their large number of cases. But it must be obvious that the type of patient admitted to the Mayo Clinic is different in very many respects from the type admitted to a large general hospital in London or Paris. Acute cases must be almost unknown in Rochester, and certainly the type of hæmatemesis we see in this hospital, admitted within an hour of bringing up a pint or more of blood, can rarely find its way into a clinic such as the Mayo. Further, Gutman is writing of a surgical clinic, while my own figures have been derived from the total admissions, surgical and medical, for the year.

The figures of the Mayo Clinic are of little use for the purpose of this lecture, which is to examine the *causes of hæmatemesis as a whole rather than the* cause of hæmatemesis in a highly selected class of patient. For my purpose Gutman's figures are more useful and should be more comparable with the figures obtained here; 21 per cent. of Gutman's cases are recorded as undetermined as against 39 per cent. at the West London Hospital. This discrepancy may be due in part to the relatively small number of cases that I have submitted to analysis, but I think there are also other factors which help to explain it.

In the first place Gutman is concerned with cases admitted *for* hæmatemesis, while my cases include all those admitted *with a history* of hæmatemesis. Moreover, Gutman is inclined to include amongst the causes of hæmatemesis diseases which are certainly only indirectly responsible and which, in this country, might be taken as having nothing at all to do with it. For example, in 34 of his 100 cases the hæmorrhage is attributed to a secondary dyspepsia (appendix, gall-bladder) and in 7 to "gastritis." Such diagnoses (whether correct or not) are practically never made in this hospital in cases of hæmatemesis, and it is, therefore, justifiable to assume that they would be included in the group in which no cause was discovered. This would bring Gutman's group of undetermined cases up to 62 per cent.

Of my own 28 cases only 17 can be regarded as having been admitted "with" hæmatemesis—i.e., within three days of the hæmorrhage—and of these 10 (practically 60 per cent.) were of undetermined cause. There were 1 duodenal and 4 gastric ulcers in this group, the other 2 being due to cirrhosis and hyperpiesis respectively. There were, therefore, 30 per cent. of chronic ulcers in this small group of patients admitted to hospital actually with hæmatemesis, as compared with Gutman's 19 per cent. This certainly suggests that when we are called urgently to a large hæmatemesis the possibility of chronic peptic ulcer should not be allowed too *prominent a place in the differential diagnosis.*

The figures which I have quoted show—and this is a point which should never be lost sight of—how statistics vary according to the type of work being done at the clinic where they are collated. We have, however, two sets of statistics from two similar hospitals dealing with the same class of patient which are so closely parallel as to suggest that they are indicative of the true situation. Clearly, we must examine this large group—possibly 60 per cent. of all the cases of hæmatemesis—and try to find out what lesion or lesions are responsible for the hæmorrhage.

Causes of Hæmatemesis

Before doing this it will be instructive to consider the other definite causes of hæmatemesis, all of them due to organic diseases which are more or less easily diagnosed.

PEPTIC ULCER

Peptic ulcer is a common cause, though perhaps not the commonest. It would probably be true also to say that hæmatemesis is not a very common symptom of peptic ulcer. This is not really surprising, for chronic inflammatory lesions are not liable to hæmorrhage unless the inflammatory process is very rapid or the blood-vessel very large. If neither of these circumstances is present, the vessel usually thromboses before it is eroded and so hæmorrhage is avoided. It is interesting to note that in Gutman's series of 100 hæmatemeses 11 were duodenal and only 8 gastric. This is contrary to the general belief that gastric ulcers cause hæmatemesis and duodenal ulcers melæna. In the West London Hospital during 1928 there were 95 cases of peptic ulcer admitted to the medical and surgical wards. Of these, 46 were gastric and 49 duodenal. Hæmatemesis occurred in 10 of the gastric and in only 2 of the duodenal, this series therefore confirming the popular belief. But it should be noted that of nearly 100 ulcer cases admitted there was only a history of hæmatemesis in 12 (an incidence of nearly 12 per cent.). Gutman went over 100 consecutive cases of peptic ulcer submitted to operation and found that in only 32 was there any history of hæmorrhage.

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* A post-graduate lecture delivered at the West London Hospital.

There are three sorts of peptic ulcer which bleed: gastric, duodenal and jejunal. Of the 28 cases admitted to this hospital last year with a history of hæmatemesis, 10 had gastric, 2 duodenal and 2 jejunal ulcer, so that, according to this small collection, jejunal and duodenal ulcer are equally frequent as a cause of hæmorrhage. In Gutman's series 8 per cent. are recorded as "post-operative" hæmorrhages, which is approximately the same proportion as the West London figures, and it is interesting to see that he finds the same number of hæmatemeses caused by jejunal as by primary gastric ulcer. I should doubt whether this is the experience of most general hospital clinics, but I think it emphasises an important point—namely, the relative frequency of hæmorrhage as an after-result of gastro-enterostomy.

Of the cases admitted to the West London last year no less than four had had operations on their stomachs in the past, and two of them were found to have gastric ulcers *for which the operation had not been successful.* (In neither of these two latter cases had a partial gastrectomy been done.) The two others have been recorded as jejunal ulcer, although they might equally well be included in the "undetermined" group as far as the radiological evidence went, for in neither was there any definite evidence of a jejunal ulcer. I have assumed, however, that the hæmorrhage came from the anastomosis, because Gutman has grouped *all* such cases together as "post-operative," and I have tried to make my figures as closely comparable with his as possible.

The diagnosis of these ulcers is made by a combination of the history with the physical and radiological signs. Of these the radiological are the most important, for without some positive evidence on the radiological side—always assuming that the examination has been carried out by an experienced radiologist—it must be considered doubtful whether a chronic ulcer can be present. Radiological technique has advanced so much of recent years that it is safe to assume that very few ulcers are missed. No method of examination is infallible, but when an ulcer, or some abnormality indicating an ulcer, cannot be found after thorough and expert examination, some other cause of the hæmatemesis must be sought. The history is likely to be more informative than the physical examination, because most cases of ulcer, although not by any means all, give a characteristic history. On the other hand, physical signs are as frequently absent as present—perhaps even more frequently. But when they are present they may provide very useful information.

If a chronic ulcer bleeds it will not be possible, unless the hæmorrhage is very small, to submit the patient to full investigation at once. In an average case three weeks must elapse, but, as I have already pointed out, it is unlikely that a chronic ulcer will heal in so short a space of time, and some abnormal radiological signs are almost certain to be present if such an ulcer is the cause of the hæmorrhage. It is improbable that more than about 40 per cent. of all cases of hæmatemesis will give such signs.

CIRRHOSIS OF THE LIVER

Cirrhosis is one of the next most common causes of hæmatemesis. The fact that cases of so-called splenic anæmia also develop cirrhosis of the liver makes it a little difficult to disentangle these two groups, which together are responsible for quite a large number of cases of gastric hæmorrhage. Of our 28 cases here only one was certainly due to cirrhosis; this patient died and the diagnosis was confirmed in the post-mortem room. On the other hand, the diagnosis is not easy to make unless the patient exhibits the classical signs, and it is quite likely that a certain number of the "undetermined" group are really cases of cirrhosis. I do not think that sufficient attention is paid to the possibility of cirrhosis in middle-aged patients suffering from hæmatemesis of obscure origin. We are apt to dismiss the disease after satisfying ourselves of the sobriety of the patient; but alcohol is not by any means a necessary factor in the ætiology of cirrhosis. It is true that alcoholics get cirrhosis more frequently than sober people, but so they do many other diseases. *If all cases of cirrhosis were investigated we should find a surprisingly high proportion in temperate, and even in teetotal, patients.*

It is unfortunate that we have no really satisfactory test for hepatic function, but I believe that the lævulose test, although it cannot be considered very delicate, is well worth using when cirrhosis of the liver is being considered and when the clinical signs are equivocal. In quite a number of cases I have had help from this test and have, rightly or wrongly, attributed a hæmatemesis to cirrhosis which would otherwise have had to be classified as of unknown cause.

Rivers and Wilbur found only 12 cases of cirrhosis in their total of 668 cases of hæmatemesis at the Mayo Clinic. But it must be remembered that cases which had already been diagnosed as cirrhosis would not be likely to be sent to the Clinic, as they would not be suitable for treatment there. The total of 2 per cent. is therefore probably an underestimate of the frequency with which cirrhosis causes hæmatemesis. The one West London case, out of a total of 28, gives a percentage of approximately 3·5, and Gutman found 5 per cent. I have an impression, based upon several months spent working in a Paris hospital, that cirrhosis is a good deal more common in France than in this country, and I do not think we should conclude that more than 5 per cent. of all cases of hæmatemesis are due to cirrhosis.

ASSOCIATED WITH SPLENOMEGALY

The other important group is one which I think is best called hæmatemesis with splenomegaly. I prefer to avoid more precise terms, such as Banti's disease or splenic anæmia, because I feel that we are dealing with a large group of cases whose pathology is not properly understood and whose clinical differentiation is far from clear. The fact remains, however, that splenomegalic patients get hæmatemesis, and that such patients may later develop cirrhosis of the liver and acquire the clinical picture of Banti's disease. It has long been the custom to speak of patients who have a moderately enlarged spleen and a "secondary" type of anæmia with a leucopenia as suffering from "splenic anæmia." *It is no part of* my present purpose to enter upon a discussion of this obscure but interesting hæmatological problem. The point of importance is that certain patients with enlarged spleens are especially liable to gastric hæmorrhage.

The type of enlarged spleen which seems particularly to be associated with hæmatemesis is the type found in Banti's disease, and this spleen, as a result of fibrosis, loses much of its elasticity and contractility. A possible explanation of these hæmorrhages is that one function of the spleen is to regulate the portal pressure by its power of contracting and expanding. If it loses this power, as it certainly does in the conditions we are considering, there is no mechanism to compensate for sudden rises in portal pressure, which might then lead to congestion and rupture of vessels. Villaret,[3] over 25 years ago, did some experiments showing that the spleen does exercise this regulating effect upon the portal circulation, and he believes[4] that it is the loss of this which causes portal "hypertension" and consequent hæmorrhage in splenomegalic patients. Fiessinger[5] appears to believe that the back pressure is on the arterial side. The radicals of the splenic artery are obstructed spleenwards and so the pressure rises in the vessels supplying the gastric mucosa. Cure will be achieved if the spleen is removed, provided that cirrhosis of the liver has not yet set in.

French writers have specially interested themselves in this type of gastric hæmorrhage and believe that it may be much more common than is generally supposed.[6, 7] They point out that a large spleen is not necessarily palpable and suggest that many of the obscure cases of hæmatemesis may be due to this cause. If the disease is in its early stages it will not be easy to diagnose. But the diagnosis is important, as removal of the spleen offers a prospect of complete cure. It is essential that splenectomy should be performed early, for the onset of cirrhosis will render it useless, but there does not appear to be, as yet, any certain way to establish the diagnosis before the spleen has enlarged sufficiently to become palpable.

The important practical point that arises from this discussion is that enlargement of the spleen must not be forgotten, and must be carefully searched for in all cases of hæmatemesis. The fact that a spleen is palpable at all, even with the greatest difficulty, is evidence that it is enlarged, and where this enlargement is associated with hæmatemesis, and it is clear that there is no primary blood condition—e.g., leukæmia—to account for it, the question of splenectomy must be seriously considered.

Only one of the 28 West London cases was diagnosed as splenic anæmia, which is probably the same thing as saying that only one case had a palpable spleen. Gutman had none in his series, but this might be accounted for by the fact that his was a surgical clinic—although it is perhaps surprising that none were sent to him under misapprehension. In the Mayo Clinic group reported by Rivers and Wilbur nearly 3 per cent. are recorded as "splenic anæmia." Of these by far the largest number was submitted to operation.

I do not wish to encourage the resort to splenectomy in all cases of obscure hæmatemesis. But the possible existence of some form of splenic disease should be considered in all such cases, and a careful search for enlargement of this organ should be made. If no enlargement can be found, the possibility of an early stage of the disease should be entertained and a careful watch kept for the first sign of splenomegaly. The blood picture is not particularly helpful, as the anæmia is so similar to that caused by loss of blood. But the presence of a definite and persistent leucopenia is very suggestive.

LESS USUAL CAUSES

Malignant disease.—These three groups—peptic ulcer, cirrhosis, and splenomegaly—account for the vast majority of the cases of hæmatemesis in which a definite diagnosis is commonly made. A fourth group might be made of malignant disease of the stomach, but hæmatemesis, in the sense of a brisk hæmorrhage, is not common in this disease. The presence of blood in the vomited matter, usually of the "coffee-ground" variety, is quite common, but this is hardly what is generally meant by hæmatemesis. However, at the Mayo Clinic 13 per cent. of the 668 cases analysed by Rivers and Wilbur were found to have carcinoma; Gutman found 3 per cent. Of the West London cases quoted, there were none with a definite history of hæmatemesis who were found to have carcinoma, but on looking up the admissions for carcinoma of the stomach for the year I found that three out of 18 (some 14 per cent.) had a history of having vomited material containing recognisable blood.

Rare causes.—There are, of course, a number of comparatively rare causes of hæmatemesis, but these need not detain us long. Syphilis, tuberculosis, and benign tumours of the stomach have all been described from time to time, and occasionally give rise to hæmorrhage. Blood diseases, such as purpura hæmorrhagica, leukæmia, and hæmophilia are rare causes, and are not likely to give much difficulty in diagnosis. Cases have been described associated with hæmorrhagic telangiectases of the skin (the hereditary form described by Osler), and it has been suggested that similar lesions in the mucosa of the stomach are responsible for the hæmorrhage. Some of these cases have an increased coagulation time, and this is an investigation which is worth while doing in all obscure cases. High blood pressure is probably responsible for a certain number of cases of gastro-duodenal hæmorrhage, and one such case is included in the 28 cases admitted to this hospital last year. The pressure is recorded as 172/130. The high diastolic pressure suggests that the systolic may have been a good deal higher before the hæmorrhage. Unfortunately no information is available on this point. Rare causes of hæmatemesis could doubtless be multiplied, but I think I have indicated the most likely ones.

The Cause in Unclassified Cases

We are now confronted with the interesting but difficult problem of assigning some cause to the cases of hæmatemesis which cannot be classified under any of the above headings—a very substantial percentage of the whole. The cases may be divided roughly into those in which some disease is present, not necessarily having any direct bearing upon the source of the hæmorrhage, and those in whom there is no discoverable disease at all (apart from any anæmia that may have resulted from the hæmorrhage). It is difficult to divide the cases at this hospital into these two groups, because the patients rarely stay in long enough to be submitted to the extensive investigation which can alone exclude the presence of any sort of disease. The shortage of beds and the length of our waiting-lists is the explanation of this state of affairs. In France, however, conditions are different, and in all the cases quoted by Gutman the most extensive investigations were carried out, with the result that in all but 21 cases (21 per cent.) some disease was found to which the hæmorrhage might be *indirectly* attributable.

Some 41 per cent. of these cases were found to be suffering from secondary dyspepsia or gastritis. Now dyspepsia secondary to gall-bladder or appendicular disease (or to both—for they are commonly associated) is well known, and the condition is widely recognised in this country as well as on the continent and in America. A renewed interest in the subject of gastritis and duodenitis has arisen since the recognition of these conditions at operation and the description of their pathology by Konjetzny,[8] Faber,[9] and others. There can be no doubt that duodenitis and gastritis occur both by themselves and in association with chronic and acute ulcers. And it seems likely that they may give rise to hæmorrhage. Nagel[10] has recorded 26 cases of this condition at the Mayo Clinic, and six of them suffered from hæmorrhage. The question then arises whether the hæmorrhage is diffuse or from a definite localised area such as an acute ulcer.

THE ACUTE ULCER

In using the term "acute" ulcer I should like to explain exactly what is meant by this word.

Ulcers may be divided into acute, subacute, and chronic. The evidence upon which their classification is based is mainly pathological and depends in part upon the extent to which the walls of the viscus have been penetrated. As a rule, an acute ulcer does not penetrate the muscular layer of the stomach or duodenum. Such ulcers are, in fact, superficial, and the pathological changes found on microscopical examination are not such as to justify the use of the term "chronic" in its pathological sense. It must be realised that "acute" and "chronic" are pathological as well as clinical terms and, in relation to ulcers, they are used here in the pathological sense. Rarely an ulcer may penetrate all the layers of the stomach and duodenal walls without giving rise to any "chronic" pathological changes; in other words an acute ulcer may perforate although it rarely does so.

Moreover, acute ulcers are nearly always multiple and they tend to heal very readily. Stewart [11] has shown that these ulcers are commonly found in association with infection and inflammatory lesions; inflammation of the gall-bladder and appendix is particularly apt to be associated with acute ulceration in the stomach and duodenum. Acute ulcers are apt to bleed simply because they are likely to erode a small vessel before that vessel has time to thrombose. The probability is that only a very small proportion of acute ulcers bleed, but I think it is likely that they account for a very large number of all cases of hæmatemesis.

There has been a good deal of confusion about the nomenclature of these lesions. Simple erosion, superficial erosion, and hæmorrhagic erosion are all used, and it is not yet decided whether they all refer to the same condition in different stages of its existence or to different entities. Personally, I incline to the view that all are stages of the same lesion. All chronic ulcers start as acute ones, but all acute ones do not become chronic. It is not part of my present subject to deal with the question of what determines whether a given acute ulcer becomes chronic or heals. But I should like briefly to indicate my belief that the constitution of the individual is one of the determining factors. Certain people are born with ulcer constitutions—the "ulcer race" of Draper—and if these acquire acute ulcers they are very likely to become chronic. On the other hand, if a person with some other type of constitution develops an acute ulcer the chances are that that ulcer will heal and not become chronic. The point of importance in relation to the subject of my lecture is that the acute ulcer, whatever the constitution of the individual, is likely to bleed.

Aschoff [12] describes two varieties of acute ulcer: erosions of the fundus and erosions of the lesser curvature. The former are very widely distributed and are often present in fairly large numbers. It is clear that they do not often become chronic, because chronic ulcers are rarely found outside the lesser curvature. It is therefore probable that the lesser curvature type of acute ulcer is the one that most usually becomes chronic, and there are anatomical reasons for supposing that this is so. The source of the blood-supply and the arrangement of the musculature are different in these two localities, and it is to these differences that the distinction between the two types of ulcer is attributed. The fundus erosions are smaller than those of the lesser curvature but the latter, although frequently multiple, are usually fewer in number. Aschoff does not believe that the two types are often associated in the same individual. If this is so, it is probably accounted for by the constitution of the patient. But it is clear that some form of acute ulcer may occur in any type of individual, and they are all likely to bleed if the ulcerative process causes a breach in a vessel.

Gutman attributes 41 per cent. of his cases of hæmatemesis to secondary dyspepsias and gastritis. He gives no clear account of how such lesions in other organs lead to gastric hæmorrhage, and I suggest that these cases are really cases of acute ulceration, either of stomach or duodenum (or perhaps of both), the appendicitis or cholecystitis being merely the origin of the infective factor producing the ulceration.

I am prepared to admit that a localised gastritis or duodenitis may be hæmorrhagic and bleed, without any discoverable ulcer. But this is really only a matter of degree. The bleeding must come from somewhere, and there must be a breach in the wall of a vessel to allow the blood to escape. If the lesion is large enough to be seen we call it an acute ulcer. If it is too small to be seen, and perhaps multiple, we have to take refuge in some other term, and duodenitis is as good a one as any. The real point is that hæmorrhage commonly comes from an acute lesion of the gastro-duodenal mucosa, be that lesion localised or diffuse.

Bortz,[13] of Philadelphia, in a paper published last year, quotes a case described by Alvarez, in his recent book on nervous dyspepsia, of an inventor who had a hæmatemesis every time his invention failed—namely, six times in three years. This is quoted as evidence that emotional strain may be a cause of diffuse gastric hæmorrhage, but it does not seem to me to be at all conclusive. I can still imagine that the hæmorrhages might have been due to acute ulcers whose activity was stimulated by irregularities of diet (or drink!) after the recurring failures of the invention.

Bortz quotes Hale-White's writings on gastric hæmorrhage, and no English writer, particularly if he owes his education to the medical school of Guy's Hospital, can fail to take note of these important contributions to the study of hæmatemesis. Hale-White seems to have been the first person to recognise that hæmatemesis was a commoner disease than gastric ulcer. At the time he was writing—his papers were published in THE LANCET in 1901 [14] and 1906 [15]—X rays were in their infancy, and the diagnosis of ulcer was made by purely clinical methods. Hale-White considered, from his experience in the post-mortem room, that gastric ulcer (in what we should now call the chronic form) was not a particularly common disease, but he had noticed that hæmatemesis was a very common cause of admission into the medical wards. And in some of the rare cases when this hæmatemesis had been fatal he had failed to find any evidence of ulcer in the post-mortem room. He had, however, noticed a diffuse congestion of the mucosa in these cases, and had concluded that the hæmorrhage came from a capillary oozing to which the name gastrostaxis was given—a name which is still widely used.

It seems to me to be more likely that this form of hæmorrhage is really due to acute ulceration—possibly associated with some form of gastritis. The acute ulcers are not easy to find, and would almost certainly be missed by anyone unfamiliar with their appearance and who was not actually looking for them. I would not go so far as to say that true diffuse hæmorrhage from the stomach does not take place, but I believe that most cases in which this has been thought in the past to be the cause of hæmorrhage are really cases of small acute ulcers—often multiple, and of such minute proportions as to escape the eye of the morbid anatomist.

There is one other point about these acute ulcers, and it is a point of special importance in connexion with the treatment of hæmatemesis. Acute ulcers have often been noted in association with chronic ones. It is possible that the chronic ulcer is one of a number of acute ones which has become chronic, or it may be that the acute ones are caused by the irritation and infection of the adjacent chronic process. I have already mentioned my belief that the acute inflammatory process is more likely to give rise to hæmorrhage than the chronic, and if this is so it follows that the acute ulcer is more likely to bleed than the chronic, even when the two are associated. If a patient with a known chronic ulcer has a hæmatemesis there is a distinct possibility that the hæmorrhage is coming from a complicating acute ulcer and not from the chronic one at all.

In 89 cases of gastric ulcer examined at autopsy by Stewart [16] 6·7 per cent. were accompanied by acute ulcers. In the duodenal group, of which there was a larger total number (153 cases in all), the incidence of acute ulcer was 11·8 per cent., one-third of these being duodenal and the rest gastric. In two of the gastric cases it is said that "hæmorrhage from one of the acute ulcers appeared to be the immediate cause of death." Incidentally it is interesting to note that acute gastric ulcer is a not uncommon complicating lesion in chronic duodenal ulcer, and this suggests one reason for the relative frequency of hæmatemesis, rather than melæna, in duodenal ulcer. In Gutman's series of cases duodenal ulcer was found more often than gastric.

I hope I have said enough to show that acute ulceration of the stomach or duodenum is a common, if not the commonest, cause of hæmatemesis. In those cases in which hæmatemesis comes unheralded by classical ulcer symptoms, and in which full investigation reveals no lesion of the stomach or duodenum, we have to consider first the possibility of cirrhosis of the liver or disease of the spleen. If these can be excluded we are left with acute ulcer as the most likely cause, and it only remains to account for the presence of this lesion. Infection is the probable cause, and this must be most diligently searched for and, if possible, eliminated. Particularly important in this respect are the gall-bladder and appendix. But the teeth, tonsils, and accessory sinuses must not escape consideration and, wherever infection is found, it must be adequately dealt with. This view of gastric hæmorrhage explains Gutman's findings of secondary dyspepsia as a common cause of hæmatemesis, for these dyspepsias, depending as they do mainly upon lesions of the gall-bladder and appendix, are specially likely to be accompanied by acute ulceration. Even when chronic ulcer is proved to be present there is no means of proving that the hæmorrhage comes from this source. I do not suggest that bleeding must never be attributed to a chronic ulcer. When the latter lesion is shown to exist it is the most probable source of the hæmorrhage. But I do want to emphasise that even though the chronic ulcer is present it does not follow that the hæmorrhage may not come from an incidental acute ulcer.

Prognosis

In the experience of most observers the prognosis is very favourable. Of the 28 cases that I have quoted from this hospital only one died as a result of the hæmorrhage, and that was the case of cirrhosis of the liver—and I believe that the prognosis in hæmatemesis from cirrhosis is far graver than from acute or chronic ulcer. One other patient died, but this was due to post-operative pulmonary embolism. I have also obtained the figures relating to the admissions at another hospital to which I am attached. Last year there were ten admissions for hæmatemesis, of whom one died. This death was due to the perforation of a vessel by an acute ulcer. So that out of a total of 38 cases there were two deaths directly attributable to hæmorrhage (approximately 5 per cent.). If we eliminate the cases in which it is clear that neither acute nor chronic ulcer was responsible for the hæmorrhage, the death-rate was only 1 in 35 (or approximately 3 per cent.). This figure is in general agreement with the figures given by Hurst[17] from Conybeare's investigation of 600 admissions for hæmorrhage at Guy's Hospital (2·5 per cent. mortality), and I think we may safely conclude that not more than 3 per cent. of all cases of hæmatemesis from ulcer (acute and chronic) will succumb to the hæmorrhage. Improvement in the treatment of hæmorrhage, especially the provision at all hospitals of the facilities for immediate blood transfusion, must have reduced the mortality very considerably in recent years.

Treatment

The fact that the mortality from hæmorrhage of this sort is low does not mean that treatment is unimportant. Thorough and prompt treatment is essential if successful results are to be obtained. As in all cases of hæmorrhage, rest is of first importance. This is secured by morphia, which must be given in adequate doses. An initial dose of gr. $\frac{1}{3}$ is not too much if the patient is heavy, and only in the smallest patients should as little as gr. $\frac{1}{6}$ be given. Atropine gr. 1/100 should be given at the same time in order to prevent, as far as possible, the secretion of hydrochloric acid.

Rectal feeding should be instituted and continued, nothing but ice being given by the mouth until the hæmorrhage has been arrested. The hygiene of the mouth must be carefully preserved to eliminate the very real risk of parotitis. The value of ice has probably been over-rated, but I think it is worth giving, as it tends to stimulate a flow of saliva and counteracts any tendency to dryness of the mouth, which is particularly likely to be present if atropine is being given. It is not likely to have any direct effect upon the bleeding point, but it is comforting to the patient and can do no possible harm. The rectal feeds should consist of glucose-saline solution: 15 oz. of a 4 per cent. or 5 per cent. solution of glucose in normal saline are given about every six hours, and once a day an enema should be given. Without this the absorption of the glucose and saline is not so efficient.

The value of washing out the stomach is not sufficiently appreciated. If carefully done there is no risk of disturbing the bleeding point, and the emptying of the stomach increases the chance of arresting the hæmorrhage. A large blood clot in the stomach acts in the same way as food, and being protein it provokes a secretion of gastric juice as well as stimulating gastric motility. If this can be removed, immobilisation of the stomach is secured, and the muscle will contract down and assist in the arrest of the hæmorrhage. An ordinary large-size stomach-tube is used, and is passed only as far as the cardiac orifice. The use of Senoran's evacuator, as recommended by Hurst, is a great help, but if this is not available the ordinary funnel can be employed. The stomach is washed out with small quantities of iced water, not more than 4 oz. at a time, until the fluid returned is perfectly clear. A styptic solution such as ferric chloride (1 in 1000) may be used, but I doubt whether it is of very much use. When the stomach is clean and free from blood it should be completely emptied and a few drachms of adrenaline run in. There is no risk of over-dosage or of increasing the blood pressure, for adrenaline is quite inactive when given in this way, although it will have a local effect and tend to constrict the blood-vessels.

Some form of alkali should be given, and the best is the tribasic phosphate of magnesium; 1 drachm may be given every hour as long as the patient is awake.

Before any of these measures are adopted (except morphia) the blood group should be determined and the hæmoglobin estimated. It is difficult to give any definite rule as to the indications for transfusion. but it is certainly required if the hæmoglobin falls to 20 per cent. or less, or if the red cell count is below 1,000,000. Hurst recommends transfusion if the hæmoglobin falls below 40 per cent., and if the hæmorrhage appears to be continuing this is probably a good rule. But if the indications provided by the pulse-rate and blood pressure show that the hæmorrhage has probably been arrested there is no need to resort to transfusion, as a patient with an anæmia of this degree is quite capable of recovering with less heroic measures.

The secondary anæmias from which these patients suffer are not accompanied by any fall in blood calcium and there is, therefore, no need to give calcium by injection. Other reputed remedies for arresting hæmorrhage, such as hæmostatic serum, are of doubtful utility, and the best that can be said of them is that they probably do little harm. On theoretical grounds it is unlikely that serum can have the slightest effect in increasing the coagulability of the blood unless given in doses which would be dangerous.

As soon as the hæmorrhage has been arrested, and has remained arrested for 24 hours, feeding by mouth can be begun. It is surprising how soon the hæmorrhage will stop even after quite a considerable hæmatemesis. I have known the occult blood test become negative in less than a week after a large hæmatemesis of over a pint. But it is not necessary to wait for the occult blood to disappear from the stools. Cessation of hæmatemesis and melæna, a steady pulse, and a rising blood pressure and hæmoglobin percentage are the most useful criteria for determining the time of arrest. It is best to assume that one is dealing with a chronic ulcer and to give a diet accordingly. Any of the recognised ulcer diets answers the purpose, but personally I prefer that described by Hurst.

I believe that it is usually safe to examine the patient radiologically within a fortnight of the cessation of hæmorrhage, provided that the patient's general condition is reasonably good. Sometimes it may be advisable to wait a little longer, especially as the examination will lose much of its value if the patient cannot stand for a few minutes. For this reason I often have the patients got up for a few days before radioscopy, so that they may recover sufficient strength in their legs. But I like to have them examined as early as possible, so that a chronic ulcer, if it is responsible for the hæmorrhage, may not have time to heal. Obviously a certain amount of judgment is necessary in deciding exactly when to proceed with the investigations.

SURGICAL TREATMENT

You will notice that I have said nothing about surgery in the treatment of hæmatemesis. Some years ago it was commonly practised, but the results have not encouraged its more extensive use. I have already shown that the prognosis is good with efficient medical treatment, and patients with severe hæmorrhages are not good surgical risks. Unless one can be certain that one is going rapidly to find the source of the hæmorrhage, and equally rapidly to arrest it, surgical interference is not justified. And when can we be certain of either of these things? We rarely have to deal with a patient in whom a chronic ulcer is *known* to exist at the time of the onset of the hæmorrhage. Even the history may be misleading, assuming that the patient is in a condition to give an accurate history. If the bleeding is from any other source than a chronic ulcer—e.g., acute ulcer, œsophageal varix, splenic anæmia—surgery is bound to fail, for the lesion will not be found. In old days it was a common experience for surgeons to explore these cases and find nothing. Laparotomy does not improve the condition of a patient already depleted of blood, and he should not be submitted to this risk without the fullest expectation that something useful can be done. Assuming, however, that we have to deal with a patient who is known to be suffering from a chronic ulcer, who perhaps has recently been radiographed and had the ulcer clearly demonstrated, we should still hesitate to advise operation, because it may not be the chronic ulcer that is bleeding. It is impossible to exclude a complicating acute ulcer as the cause of the hæmorrhage, and such an ulcer would never be found at operation.

What good is it to deal with the known lesion and leave the unknown which is the cause of all the trouble? Surgeons have frequently operated and left the patient with no possibility of hæmorrhage from the chronic ulcer, which has been found, and yet the hæmorrhage has continued. Hurst[18] describes a case in which he advised operation, and a large ulcer was found on the posterior wall of the duodenum. "The gastro-duodenal and right gastro-epiploic arteries were tied, the ulcer invaginated with catgut sutures, and a gastro-jejunostomy was performed. The hæmorrhage, however, continued, and in spite of two transfusions he died the following day." Theoretically the ideal case for operation is the large chronic ulcer with an atheromatous vessel whose wall is unlikely to contract and so allow of spontaneous arrest by thrombosis. But it is almost impossible to determine in advance that these conditions will be found, and such an ulcer is likely to bleed so rapidly that a fatal outcome will occur before operation can be considered. However, in a patient of middle age, with definite evidence of arterio-sclerosis and equally definite evidence of chronic ulcer, operation might be justified if the hæmorrhage persisted in spite of thorough medical treatment, including transfusion. But that is about the only type of case in which, personally, I should even consider advising operation.

When the patient has recovered from his hæmatemesis the question may arise as to whether he should be operated upon to prevent a recurrence. The indications here are the same as the indications for operation in peptic ulcer generally, and I cannot go into them. Operation, however, does not by any means eliminate the risk of hæmorrhage. I see plenty of patients who have considerable hæmorrhages many years after operations for gastric and duodenal ulcers. I knew a man of a little over 40 years of age who died of such a hæmorrhage more than 20 years after an operation for duodenal ulcer. He had had attacks of melæna at intervals for many years before one of these proved fatal. If the practitioner advises his patients to submit to operation because they have had a hæmatemesis, he must not imagine that they will necessarily be immune in the future. There appear to be some patients who are particularly liable to hæmorrhage, and these are perhaps as likely to bleed after operation as before. My own view is that the indications for operation after hæmorrhage are precisely the same as the indications before.

I have tried to show that hæmatemesis is far less often directly due to chronic peptic ulcer than is commonly supposed. I believe that acute ulcer is a much more common cause, and that this may be the cause even when a chronic ulcer is also present. For this and other reasons which I have given I believe that the treatment of hæmatemesis is medical, and that surgical intervention is only indicated in exceptional cases. The safe rule is never to operate for hæmatemesis at all. Practitioners who follow this rule will, I am confident, save more lives than they will lose.

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CURRENT THEORIES OF THE ÆTIOLOGY OF PELLAGRA*

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THE ætiology of pellagra may seem a strange subject for a lecture by one who has no experience of the disease and is not even a clinician. My reason for this choice is that many of the problems in nutrition studied in recent years by the group working on nutrition at the Lister Institute have touched closely some of the subjects involved in the current theories of the ætiology of this disease.

I do not propose to deal with theories which have been advanced to explain the causation of pellagra other than those which are dietetic or nutritional in character. To those like myself whose knowledge is derived from a study of the literature, the case seems settled in favour of a dietetic theory. The various theories which have been put forward from time to time involving an infective agent, have received no continued support or confirmation, and the following facts seem to admit of only one origin, a nutritional origin, for the disease :—

(1) The lack of any evidence of spread of the disease among contacts not receiving the same diet; (2) the absence of recorded instances of nurses and doctors contracting the disease from the patients attended by them; (3) the observed recovery of patients receiving an "improved" diet in hospital, without other treatment, and the failure to do so on an "inferior" diet.

The final proof would seem to be contained in the long series of researches carried out by Goldberger and his colleagues,[1 2 3] showing that pellagra can be prevented or cured in populations among which the disease is endemic by adding to the diet in sufficient quantity even one only of certain simple foodstuffs, such as meat, milk, tomatoes, wheat embryo, or yeast. The situation has been well summarised in a recent paper of Wheeler and Sebrell.[4]

In the attempts which have been made to determine the exact defect in diet by which pellagra is caused, there are three well-established facts which have formed the basis for special study :—

1. Pellagra is a disease of poor people in rural districts, subsisting on a limited choice of food, and is rarely, if ever, seen among the well-to-do, who enjoy a richer or more varied diet.

2. It is almost invariably associated with the use of maize as a staple cereal in diet, and its occurrence in populations subsisting mainly on wheat or rice is something of a rarity, though well-authenticated cases have been reported.[5 6] The occurrence of pellagra in recent years in the United States as the result of severe alcoholism appears, at first sight, to be another exception to the above rule; it may, however, prove to be otherwise (see below p. 346).

3. It is a disease of warm and sunny countries, a fact which may, however, be partly connected with the fact that maize is often the cheapest cereal in such localities, as, for example, in Egypt, Italy, Rumania, and the Southern United States, where pellagra is prevalent.

The above facts must be satisfactorily accounted for in any theory which professes to explain the ætiology of pellagra, and it is especially the connexion of the disease with the consumption of maize which will form the subject of this paper. For it is just in this respect that the two main theories which are current to-day break down. These are, first, the theory connecting pellagra with an amino-acid deficiency in diet; and, secondly, that associating the disease with a vitamin deficiency.

The Theory of Amino-acid Deficiency

The association of pellagra with maize consumption led naturally to the conclusion that the disease might be caused by a lack of protein of high biological value; in other words, by a deficiency in the diet of certain essential amino-acids. The proteins of maize have been shown to consist, to the extent of 58 per cent., of zein,[7] the notoriously incomplete protein lacking the important amino-acids tryptophane and lysine. The work on zein of Willcock and Hopkins,[8] and of Osborne and Mendel,[9] which is too well known to need description, showed conclusively that young animals fed on diets containing zein as the sole source of protein could not maintain their weight unless tryptophane was added, and were unable to grow unless lysine was given.

Zein is thus a protein of low nutritive value incapable of replacing completely the daily nitrogenous waste of the body. Maize glutelin, which forms 36 per cent. of the protein in maize,[7] is, however, more complete in the essentials in which zein is lacking, and tends to supplement the latter, when maize is consumed.

Animal proteins as a class contain a more varied assortment of amino-acids than vegetable proteins (e.g., those of cereals, vegetables, and legumes), and in this respect may be assumed to resemble more closely those contained in the tissues of the animal they are used to nourish. It is generally true that nitrogenous equilibrium can be obtained on a smaller intake of animal, than of vegetable, protein; in other words, animal proteins have a higher biological value. The observed good effect on pellagra of adding meat, milk, and eggs to the dietary can therefore readily be explained as due to the advantage of giving a richer variety of essential amino-acids.

The theory that pellagra is developed on a maize diet as the direct result of an amino-acid deficiency is therefore a reasonable and attractive hypothesis, and the last 20 years have seen many laborious investigations carried out with the object of determining the relative biological value of the proteins of the commoner foodstuffs. The experimental work has been of two types: (1) comparison of the minimal proportion of different proteins required in a dietary, as the sole source of nitrogen, in order that young animals may be reared to maturity; (2) short-term metabolic observations in which determination is made of the minimal intake of different proteins required to maintain nitrogenous equilibrium.

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* De Lamar lecture, delivered at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, on Nov. 15th, 1932.

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(1) Among experiments of the first type are the extensive pioneer series with purified proteins carried out on rats by Osborne and Mendel,[10] which revealed the deficiencies of certain amino-acids in certain proteins—e.g., of cystine in casein, and of lysine in edestin and wheat gliadin. The work of McCollum and his co-workers [11] has a special value in that the experiments lasted long enough to include reproduction and lactation. In their work determination was made of the minimum amounts of various foodstuffs required to support these functions, when providing the sole source of protein in the diets, which were similar as regards other elements. The results obtained are summarised in Table I., where the foodstuffs are arranged in the order of their biological value. They show the high place taken by the proteins of whole wheat—above those of milk and nearly equal to those of ox-kidney—the relatively low place taken by meat (muscle), and the low value given to the proteins of maize. For maintenance of weight only, in young rats, the proteins of whole wheat, whole maize, and whole rice were found to be approximately equal to each other,[12] and a similar result was obtained with pigs.[13]

TABLE I

Relative Biological Value of Proteins

Criterion.	Growth, reproduction, lactation.	Maintenance of weight.
Animal..	Rat.	Rat. Pig.
	1. Ox-kidney (9 % protein in the diet). 2. Whole wheat (9 %)* 3. Milk ; ox liver. 4. Barley ; rye ; ox muscle (14 %). 5. Maize ; oats. 6. Soy bean ; navy bean ; pea.	— Wheat and maize about equal.
Authority.	McCollum and others, 1921.	McCollum and Simmonds, 1917. Hart and McCollum, 1914.

* Young not successfully reared.

This work, however, was done before much knowledge was available regarding the distribution of the various vitamins, or of the animal's requirements of them, and the foodstuffs tested served often as source of the B-vitamins as well as of protein, so that a deficiency of the constituents of the B-vitamin complex may have influenced the results.

(2) The second method involves a study of the daily nitrogenous exchange with determinations of the minimum daily intake of the protein in question necessary to maintain nitrogenous equilibrium. For calculation of the biological value it is necessary to determine (A) the daily loss of nitrogen of endogenous origin (by measurement of the nitrogen excreted daily by the experimental subject in urine and fæces, when the diet is nitrogen-free and consists only of carbohydrate, fats, and salts); and (B) the amount of nitrogen intake required to replace exactly this daily loss, when the protein investigated is the sole source of nitrogen in the diet. The biological value, then, is proportional to the expression $\frac{A}{B} \times 100$.

These experiments present great technical difficulties, especially in the determination of (A), for nitrogen-free diets are extremely unappetising, and it is often difficult to secure adequate caloric intake over the period of time required to ensure a trustworthy determination. Nevertheless, the observations of Thomas [14] and of Martin and Robison,[15] on themselves, agree in estimating the daily loss of nitrogen of endogenous origin due to the wear and tear of body tissues and formation of internal secretions at about 3·1 g. N, or 0·04 g. N per kg. body-weight. For the pig the amount is 0·05–0·07 g., and for the adult rat (weighing 300–400 g.) about 0·08 g. N, per kg.

In the determination of (B) several hit and miss trials may be necessary, and it is desirable to use the results of experiments in which the nitrogen intake is near, but just below, that required for equilibrium. Thomas devised formulæ by which the biological value could be calculated from any one experiment, whether a negative or positive nitrogen balance was obtained; the criticism of his reasoning and a complete discussion of this point is given by Martin and Robison. Work of this type has been carried out on the human subject,[14 15] the pig,[16 17] and the rat.[18 19 20 21]

The results obtained by Thomas in a series of heroic experiments on himself with 15 different foodstuffs have formed the scientific basis for the theory connecting pellagra with diets containing proteins of too low a biological value for satisfactory nutrition. A study of the series of numbers in the second column of Table II. shows the high value given to the proteins of the pellagra-preventive foods, meat (105), and milk (100), and the lower value for vegetable proteins, with those of maize (29) at the bottom of the list. These figures were used by Wilson [22] in his important study of the protein content of diets associated with outbreaks of pellagra. As a result he was able to marshal an impressive amount of evidence leading to the conclusion that "pellagra is the ultimate result of a deficient supply of protein," the deficiency being judged on the biological value of the protein assimilated.

WHEAT *versus* MAIZE

It is obvious that, on the basis of Thomas's values, any diet largely consisting of maize is defective as regards the protein supply, but his results have not been confirmed by later workers. His technique has been criticised by Martin and Robison [15] in that the separate experiments were of too short a duration, and the intervals between them not sufficiently long to allow of a wash-out of residual nitrogen from the previous diet. The applicability of the formulæ used by him for calculation of the biological value has also been questioned, and to-day the general opinion is that Thomas's figures for the proteins of animal origin are too high and those for the cereal proteins, especially for those of maize, too low. It is unfortunate that Thomas's experiments are the only ones of this type with maize proteins on the human subject. It was the intention of Martin and Robison to extend their work to a study of maize proteins. Their experiments avoided all the errors of technique which have been criticised in those of Thomas, but the rigours involved proved to be so great that their work could not be continued for reasons of health.

While the figures obtained by other workers (given in later columns of Table II.) using experimental animals confirm Thomas's results in the general result that the proteins of animal origin (especially those of milk) are found to possess a nutritive value superior to those of vegetable origin, the differences found are not so great. It is also striking that the values obtained for maize proteins have not been found inferior to those of wheat or other cereals. The most recent research, that of Boas Fixsen and Jackson,[21] carried out at the Lister Institute, was especially devoted to a comparison of the nutritive value of wheat and maize proteins. A special feature of this work was the ample provision of the B-vitamins secured by administering potent purified preparations containing only small amounts of nitrogen. When this precaution was taken, no significant difference was found between the samples of maize and wheat tested in their capacity to maintain nitrogenous equilibrium in the experimental animal.

The sum of the work described above leads to the conclusion that a theory of the causation of pellagra based on a defective protein supply in diet will not explain the connexion between the incidence of the disease and the consumption of diets consisting largely of maize. It is questionable, however, to what extent it is justifiable to apply the results of short term experiments on nitrogenous equilibrium, such as the above, to the case of populations subsisting largely on maize for long periods. The experience of mankind is certainly in favour of wheat rather than maize as a staple, and the latter is usually eaten from necessity rather than choice. The experimental work in which young animals have been reared on diets containing proteins derived from one cereal only, has often given results in favour of wheat rather than maize. These experiments have, however, been criticised on technical grounds in the general review of the subject given by Mitchell,[23] who has also pointed out that pellagra is a disease mainly affecting adults and, in this respect, differs from many other diseases of nutritional origin to which young children are especially susceptible.

TABLE II

Relative Biological Value of Proteins

Criterion.	Maintenance of nitrogenous equilibrium.							
Experimental animal.	Man.	Man.	Pig.		Rat.		Rat.	
Foodstuff.	—	—	Protein in diet.				—	% protein in diet.
			Low.	High.	5 %	8–10 %		
Caseinogen	70	..	..	67†	73	..	76	6
,, purified and heated	..	..	..	..	..	..	45–50	All levels.
Zein	..	..	85*	55‡	..	..	..	..
Gelatin	..	..	52*	..	..	..	..	..
Fish muscle	95	..	..	..	..	..	..	..
Ox ,,	105	..	..	..	..	69	..	..
Milk (cow's)	100	51§	..	74‡	93	85	86	7
Egg	..	..	..	..	..	93	..	..
Rice	88	..	..	..	86	67	..	..
Potato	79	..	..	..	68	67	..	..
Wheat (whole grain)	..	35§	..	45†	..	67	68	6
,, (embryo)	..	..	..	..	..	..	69	7
,, (endosperm, white flour)	40	..	..	..	..	52	61	7
Oats	..	..	..	47†	79	65	..	..
Maize (whole)	29	..	..	51†	72	60	84	5
,, (endosperm)	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	67 70	8 7
Observer	Thomas (1909).	Martin and Robison (1922).	McCollum¶ (1911, 1914).		Mitchell (1924); Mitchell and Carman (1924, 1926).		Boas Fixsen (1930); Boas Fixsen and Jackson (1932).	

* Nitrogen intake equal to endogenous nitrogen—i.e., that excreted in the urine on a N-free diet.
† Nitrogen intake equal to 3 times the endogenous nitrogen.
‡ Nitrogen intake equal to 9–11 times the endogenous nitrogen.
¶ Re-calculated by Thomas's formula.
§ Consistently low values were obtained in this research. The subjects led an active life which included all the work of the investigation. Unfortunately there are no other experiments on the human subject with which these can suitably be compared.

Theory of Vitamin Deficiency

Ten years ago it would have been true to say that the current opinion, among those who had devoted most time and energy to the study of the subject, was that pellagra was the result of a defective provision of protein in the diet. Among those holding this view were Goldberger and his associates working in the laboratories of the U.S. Public Health Service at Washington. There was, however, one important observation which was not in agreement—namely, that made by Voegtlin and others in 1920,[24] that pellagra could be cured, or influenced favourably, by addition to the diet of protein-free extracts made from the liver or the thymus gland. Other aberrant facts were those discovered by Goldberger and Tanner in 1925,[25] who showed that the protein caseinogen, even when given in large amounts (46–90 g. daily), did not act as a satisfactory cure, often causing only temporary improvement, while excellent cures were obtained with 30–50 g. (dry weight) daily of a yeast extract which could only have contained traces of protein.

The results of experimental work with rats enabled Goldberger and his colleagues [26 27] to identify the pellagra-preventive substance in yeast with a constituent of the water-soluble B-vitamin complex, and provided the proof of the fact, long suspected, that the water-soluble B-vitamin contained at least two constituents, both of which were found necessary for the continued growth and development of the rat: (1) the more heat-labile, antineuritic vitamin B_1 necessary to prevent beri-beri in man and polyneuritis in birds and mammals; (2) a more heat-stable constituent, in absence of which young rats developed a pathological condition marked by a symmetrical dermatitis, which was considered to be the analogue of human pellagra.[27] The latter dietetic factor Goldberger called the P-P, or pellagra-preventive, vitamin; it is now generally known as vitamin B_2 in Europe, or vitamin G in the United States.

The quantitative distribution in foodstuffs of the anti-dermatitis vitamin B_2 has been carefully studied on young rats at the Lister Institute (see Table III.). The richest sources of the vitamin were found to be yeast and yeast extracts, liver, eggs, milk, meat, and green vegetables, while fruits, legumes, and cereals were relatively very poor, the endosperm of cereals (white wheat flour, maize grits, polished rice) being the foods most deficient in this factor.[28 29 30 31] Vitamin B_2 has thus a distribution in foodstuffs roughly similar to that of the antineuritic vitamin B_1, but there are many differences both quantitative and qualitative. In general the foods rich in vitamin B_2 are those containing proteins of high biological value, but its presence in abundance in protein-free extracts made from yeast, egg white, and liver is proof of its separate existence apart from the proteins with which it is found associated.

TABLE III

Vitamin B_2 Content of Foodstuffs (calculated on dry weight; dried yeast=100) (Roscoe 1931)

Yeast (brewers')	100
Liver (ox)	80
Egg white	20–40
Green leaf vegetables (spinach, watercress, cabbage)	
Egg yolk	10–20
Milk, meat	
Carrot, turnips	
Orange, tomato, banana	5–10
Wheat embryo	
Wheat, maize, rice, millet, peas, potatoes ..	under 5.

The canine disease known as "black tongue" was observed to have a distribution in the United States similar to that of pellagra, and Goldberger and Wheeler [32] succeeded in inducing the condition in dogs by administering diets modelled on those known to be productive of the human disease. The canine disease was found to be prevented and cured by the foodstuffs which were of clinical value in human pellagra, and in the same order of value. The two disorders were therefore held to be analogous.[33]

A remarkable similarity is shown in the distribution of (*a*) vitamin B_2, as determined by experiments with rats; (*b*) the pellagra-preventive factor, as shown by clinical trials; and (*c*) the black tongue preventive factor, studied on dogs. These facts are set out in Table IV., which is taken from a paper by Aykroyd and Roscoe,[34] and the conclusion is irresistible that these three dietetic factors are identical.

It is, however, when the distribution of vitamin B_2 among the cereals is studied that the analogy between the experimental work and the facts of human pellagra breaks down. Aykroyd,[30] using rats as experimental animals, made a careful study of the vitamin B_2 content of wheat, maize, rice, and millet. The cereal to be tested was incorporated as a high percentage of the basal diet, which contained all known essential elements, including the antineuritic vitamin B_1, and the growth of young rats was observed over a period of several weeks. The results are set out in Table V. While these foodstuffs are low in vitamin B_2, they were found to be by no means devoid of it. Whole wheat was found to have the highest vitamin B_2 content, then whole maize, and lastly unmilled rice and millet; animals receiving 30–50 per cent. of rice in the diet grew very little more (4 g. average weekly increase) than those on the basal diet without cereal supplement (3 g.). The endosperms of wheat (white flour), of maize (maize grits, maize flour, hominy), and of rice (polished rice) were found to be of an equal, but low, value. The very definite superiority in vitamin B_2 content of whole maize over unmilled rice and millet, and the lack of evidence of any inferiority of maize endosperm as compared with

TABLE V

Vitamin B_2 Content of Cereals (Growth Method) (Aykroyd 1930). (Vitamin B_1 given as Peters's Antineuritic Concentrate.)

—	No. of rats.	Average weekly wt. incr.
SERIES I.		g.
Positive controls receiving basal diet + Vit. B_2 as autoclaved yeast, 0·4 g. daily	5	12·5
Negative controls, basal diet only	12	3
SERIES II. *Materials tested.*		
Millet, whole, 30 %–50 % in diet	10	5 to 7
Rice ,, ,, ,, ,, (2 samples) ..	11	2 to 5·5
,, milled, "65 %" ,, ,, ...	10	4·5
Wheat, whole, 50 % in diet (2 samples) ..	14	14
,, (endosperm) 65 % in diet	11	5
Maize, whole, 65 % in diet	14	9·5
,, (endosperm) 65 % in diet (3 samples) ..	16	5·3

TABLE IV

Comparison of the Effects of Various Foodstuffs on (a) vitamin-B_2 deficiency in rats; (b) pellagra in man; and (c) "black-tongue" in dogs. (Aykroyd and Roscoe 1929.)

Material.	Rat. Vitamin B_2.	Man. P.P. factor.	Dog. Black-tongue preventive factor.
Maize endosperm ..	Very poor (65 %).	Associated with pellagra in U.S.A. and Italy.	—
Wheat flour ..	Very poor (65 %).	Associated with pellagra in U.S.A.	Used in basal diet to produce the disease.
Whole maize ..	Poor (30 %), growth about half the normal.	Traditionally associated with pellagra.	No preventive action; used in basal diet to produce the disease.
Whole wheat ..	Poor, but better than maize.	—	66 % in diet delayed onset of the disease, no protection.
Peas	30–40 % needed for good growth ("Clipper" peas).	30–35 % (168 g. daily), incomplete protection (Virginian cowpea).	58 % slight protection; 73 % almost complete protection (Virginian cowpea).
Wheat germ ..	15–30 %, good growth.	30 %, protection almost complete.	31 %, protection almost complete.
Fresh milk	5–10 % milk solids, good growth.	20 % solids (1200 g. buttermilk daily) protected.	250–300 c.cm. skim milk daily protected.
Lean meat	7–10 % (dry wt.), good growth.	10 % (dry wt. 50 g. daily) protected.	11 % (dry wt.) protected.
Dried yeast.. ..	1–3 % good growth.	7 % (30 g. daily) protected.	5 % protected.
Liver	1–2 % (dry wt.), good growth (ox liver).	Alcoholic extract of ox liver effective in treatment.	11 % dried pork liver protected.
Dried egg yolk ..	7–15 % good growth.	—	17 % protected.

Percentages refer to the proportion of the foodstuff contained in the diet.

that of wheat or rice, are facts which fail to explain the connexion of pellagra with the consumption of maize, whether in the unmilled or milled form. If pellagra were indeed caused by a simple deficiency of vitamin B_2 it should occur chiefly where populations subsist on poor diets containing rice, rather than maize, as a staple, and it should be no more frequent among those nourished chiefly on maize products than among the poorer classes in countries where wheat is the cereal used. This, however, is not the case. Among rice-eating people, beri-beri, and not pellagra, is the menace to those whose diet is lacking in supplementary foods, and this is also true where the food consists too exclusively of white wheaten bread and flour, as, for example, was found by Aykroyd in Labrador and Newfoundland.[31]

Theory of a Maize Toxin

While both the theory of amino-acid deficiency and that of vitamin deficiency give a satisfactory explanation of many of the facts connected with the ætiology of pellagra and with its prevention and cure, both fail to account for one very characteristic feature—the usual association of the disease with the consumption of maize. There remains, however, a hypothesis which has received many adherents in the past—viz., that maize contains a definite poisonous substance and that pellagra is caused by its toxic action. The literature on pellagra published in the second half of the nineteenth century is almost entirely concerned with this theory and the evidence, clinical and experimental, in its favour. Most of this emanated from Italy, where pellagra at that time was recognised as a serious menace, and was the subject of intensive study.

According to some of these authorities (e.g., Lombroso, 1869–1897) the toxin is produced by moulds and other micro-organisms, with which maize may be infected. According to others (e.g., Neusser, 1887), a toxic substance is produced in the organism as the result of the digestion and absorption of maize products. The experimental work brought forward in support of these theories is, however, confusing and difficult to interpret; a good account is given by Harris,[35] to whose book reference should be made.

The occurrence of the skin lesions on exposed parts of the body in pellagra led to the idea that maize might contain a photo-sensitising substance analogous to that contained in buckwheat, and this suggestion received experimental support in the oft-quoted experiments of Horbacewski.[36]

In his observations white mice fed on a diet of maize, polenta, and milk developed a dermatitis if exposed to light, whereas wild grey mice remained in good health. When extracts made from maize with alcohol or water were administered to white mice or white rats fed on a diet of wheat flour and milk, they became sensitive to light, and developed a dermatitis with muscular spasms leading to death if maintained in the light, but recovery took place if the animals were placed in the dark. Horbacewski's experiments do not, however, read very convincingly; they contain contradictions, there is lack of uniformity in the results of the different experiments, and they have not been confirmed. Attempts to repeat them were made by Aykroyd[30] at the Lister Institute, and the results were entirely negative. Both albino and black and white rats throve well on the maize diets described by Horbacewski, and a daily short exposure to the rays of a mercury-vapour lamp did them no harm. Alcoholic extracts made from maize were also administered but no toxic effects could be detected. Repeated unsuccessful attempts have been made by various workers at the Lister Institute to detect any extra sensitivity to visible or ultra-violet light in rats receiving diets composed largely of maize products, the only exception being some not altogether satisfactory observations on monkeys which developed a skin erythema on the face, reminiscent of pellagra.[37]

The toxic substance separated from maize and other cereals by Stockman and Johnston[37A] caused paralysis in monkeys and other animals, but no mention is made of dermatitis and other skin lesions.

In more recent years Jobling and Arnold[38] have produced experimental evidence that toxic substances are produced in the intestine as a result of a maize diet. Fungi (supposed by these authors to be derived from the maize ingested), producing fluorescent substances in culture, were isolated from the fæces of 5 out of 9 acute, and of 2 out of 23 chronic, cases of pellagra, and in no instance from the fæces of 50 non-pellagrous persons examined. Extracts of the fluorescent material when injected into mice were found to render these animals sensitive to light; they developed swelling and œdema of the eyelids, reddening of the ears, and death occurred in some cases. This very suggestive work has received no published confirmation in the intervening years; the authors state that the disappearance of the disease in their locality prevented continuance and completion of the work.

A recent series of observations by Sabry[39] on treatment of pellagra in Egypt by injections of sodium thiosulphate are interpreted by the author as showing a specific action of this drug in neutralising a *toxin* derived from maize circulating in the blood. This toxin is identified with dioxyphenylalanine (dopa) a substance nearly allied to tyrosin, and is held to be responsible for the characteristic skin erythema and the hyper-pigmentation on the exposed parts.

In view of these suggestive, if contradictory, results, it seems likely that the search for a toxic substance in maize and maize products is deserving of more attention in the future. There has been, and still is, a persistent conviction in many quarters among those in direct contact with the disease that deteriorated maize is particularly liable to cause pellagra, an idea reminiscent of the analogous theory, often advanced, that beri-beri is frequently connected with the consumption of damaged rice. Experiments at the Lister Institute have given indications that maize diets which have been kept rather too long before feeding may be unwholesome, in comparison with similar diets containing wheat products. The results are not, however, consistent, and further experimental work on this point is needed and might yield valuable results.

A Theory Covering the Known Facts

An attractive hypothesis that seems worth exploring would be that pellagra is caused by some toxic substance derived from maize which is rendered innocuous by the action of the P-P (pellagra-preventive) vitamin or vitamin B_2, if present in sufficient quantity in the diet. Such a theory would explain the observed curative and preventive action of the foods—yeast, liver, milk, and meat—all of which are rich in this vitamin. The fact that maize is no poorer in vitamin B_2 than other cereals would then be no stumbling-block, since pellagra would naturally tend to develop on one-sided diets consisting largely of maize. For such diets would require an extra provision of vitamin B_2 to counteract their toxic properties and to ensure correct nutrition, and if the foods required to supply the necessary amount of vitamin B_2 were not forthcoming in the other constituents of the diet, the occurrence of pellagra would be expected.

The conception of a dietetic disease being due to a positive toxic agent combined with a vitamin deficiency is not a new one. There are many analogies: indeed, one of these dates from the discovery of the first vitamin.

1. Eijkman,[40] while recognising the action of the substance contained in rice polishings in preventing and curing polyneuritis in birds, envisaged this function as that of an antidote to a poison developed in the animal's system, as a result of the polished rice diet.

2. E. Mellanby [41] has shown that cereals contain a substance called by him "toxamin," which has an antagonistic influence on bone calcification, and he has demonstrated that this action can be neutralised by a sufficiency of the antirachitic vitamin D in the diet. The beneficial effect of a cereal-free diet in checking the spread of dental caries among children has been demonstrated by M. Mellanby and Pattison.[42]

3. In experiments with dogs, E. Mellanby [43] found that the toxic effect of ergot could be checked by addition to the diet of substances rich in vitamin A, such as butter or mammalian liver oils. The fact that ergotism appears in epidemic form in times of drought and famine, it is suggested, may be due to the concomitant deficiency of the usual sources of vitamin A—namely, green vegetables and dairy products. Mellanby also considered the possibility that lathyrism, a somewhat similar disease occurring in India among poor persons subsisting largely on peas, may have a similar ætiology.

4. Boas Fixsen [44] has described a characteristic pathological condition marked by skin lesions and loss of fur in young growing rats maintained on diets in which dried egg white is the sole source of protein. The condition could be prevented or cured by inclusion in the diet of small amounts of a series of foodstuffs, including whole yeast and liver. Most of these contained "good" proteins, and many were rich in B-vitamins. It has been shown by Parsons [46 47] that the incidence or prevention respectively of the symptoms is determined by the proportion of egg white in the diet relative to the proportion of protective substance, such as yeast or liver.

A theory of pellagra formulated as follows would show a close analogy with the facts given under No. 4, thus: *Pellagra is caused by a toxic substance derived from the maize diet, which can be corrected by sufficient "good" protein, or perhaps by sufficient vitamin B_2 (which is found to accompany the "good" proteins).*

The symptoms of vitamin-B_2 deficiency as studied in the rat—the irregularity of the occurrence of the dermatitis and the frequent absence of severe intestinal symptoms—throw some doubt on any supposition of identity between this condition and human pellagra. It is possible that the effective antidote to the maize toxin is neither the "good" protein, nor the vitamin B_2, but in reality some unknown water-soluble substance which is found with these in nature or derived from them in the animal's economy.

The occurrence of pellagra in the United States among severe alcoholic addicts, which is reported to be increasingly prevalent and to have been relatively infrequent before the period of prohibition, is possibly connected with the fact that the illicit liquor may largely consist of "corn whisky" distilled from maize products. The habit of the alcoholic addict to take little other food during periods of excessive indulgence would explain the failure to neutralise poisons derived from the maize liquor. Alcoholic pellagra has rarely been reported in those parts of Europe, where whisky is distilled from barley, and where none of the usual strong liquors are derived from maize. In Rumania, however, where pellagra is a prevalent disease at the present time, maize frequently the staple cereal and "whisky" often distilled from maize, the idea of an association between pellagra and the excessive consumption of alcohol is widespread among both the medical profession and the laity.[47]

The suggestion put forward above that pellagra may be caused by a toxin derived from the diet, which can be corrected in the presence of certain foodstuffs (such as meat, milk, eggs, green vegetables) if given in sufficient quantity, is, at present, a speculation. It might, nevertheless, serve as a useful working hypothesis to those studying the ætiology of pellagra whether by the experimental or clinical method. It is put forward in the hope that by its use research may be stimulated in certain directions, which may result in further progress toward the solution of the mystery which at present shrouds the cause of the disease.

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NEW WOMEN'S HOSPITAL AT HULL.—Lord Deramore, Lord-Lieut. of the East Riding and chairman of the East Riding county council, recently opened a new hospital for women at Hull which has been built and equipped at a cost of £17,000. Provision has been made for a few paying patients.

THE ADRENOTROPIC HORMONE OF THE ANTERIOR PITUITARY LOBE

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IT was stated in a previous communication,[1] in which the fractionation of active principles in anterior pituitary lobe extract was considered, that the thyrotropic and adrenotropic substances tended to run together, but that certain evidence suggested that two separate active principles were concerned in the production of the thyrotropic and adrenotropic effects in hypophysectomised animals treated with purified anterior lobe extracts. We are able now to present conclusive proof that the adrenotropic principle as obtained in refined extracts is quite distinct from the thyrotropic principle.

The hypophysectomised rat has proved to be a very satisfactory test animal for detecting the presence of the adrenotropic hormone. We have included in this series 125 rats which proved to be completely hypophysectomised according to the following criteria: (1) weight loss following hypophysectomy; (2) complete failure to grow; (3) atrophy of the left adrenal removed for control examination before starting the injections; and (4) absence of any fragments of pituitary by careful inspection at the time of autopsy. In some of the animals we have had further evidence of the completeness of the hypophysectomy by determining the basal metabolic rates and by serial sections of the sella turcica.

The animals used were hypophysectomised 11 to 148 days previously. Before starting the injections the left adrenal was removed, weighed, and sectioned for histological examination. Removal of one adrenal from the hypophysectomised rat is not followed by a compensatory hypertrophy of the other adrenal such as occurs in the normal animal. In six control animals from which the left adrenal was removed 8 to 23 days after hypophysectomy and the right adrenal removed one week later, the right adrenal in each case weighed either the same as or less than the left adrenal of the same animal; all showed marked atrophy of the cortex by histological examination. In another group of seven hypophysectomised animals receiving Witte's peptone (20 mg. daily) or extracts of anterior pituitary free from the adrenotropic hormone, there was no evidence of any repair of the atrophy which is seen in the untreated hypophysectomised rat.

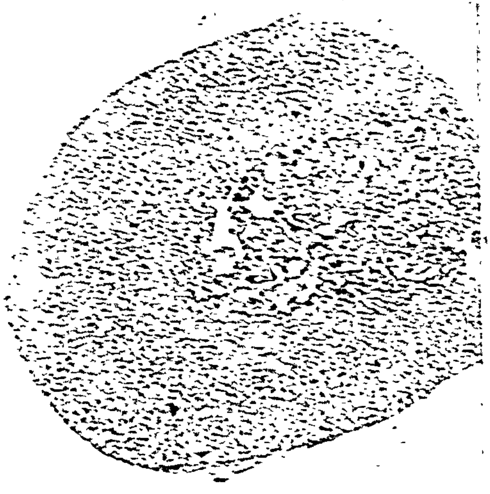

FIG. 1.—Photomicrograph of left adrenal (wt.=4·5 mg.) from an untreated rat 13 days after hypophysectomy. There is atrophy of the cortex.

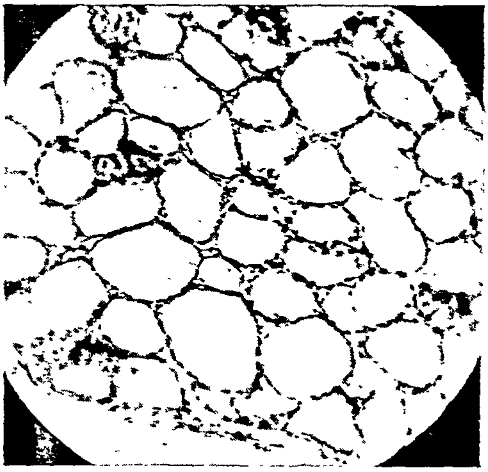

FIG. 3.—Photomicrograph of the thyroid (wt.=11·0 mg.) from the same rat shown in Figs. 1 and 2 after six days of adrenotropic hormone. The histological picture is that of an untreated hypophysectomised rat.

Out of 40 different extracts of the anterior pituitary lobe which have been tested, 34 were found to contain the adrenotropic hormone. Eight of these extracts show a fairly high degree of potency, causing an increase of 50–300 per cent. in the weight of the right adrenal over that of the left adrenal which had been removed previously as a control. Furthermore, two of the extracts which have been assayed bring about

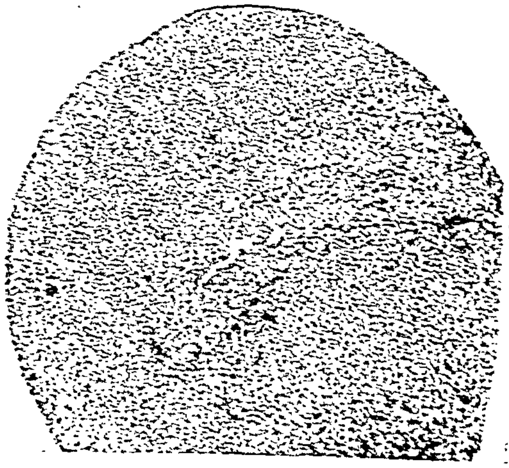

FIG. 2.—Photomicrograph of the right adrenal (wt.=8·5 mg.) from the same rat shown in Fig. 1, after six days of adrenotropic hormone (19 days after hypophysectomy). The cortex appears normal.

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[1] Collip, J. B.: THE LANCET, 1933, i., 1208.

repair of the adrenal in the hypophysectomised rat when 0·025 c.cm. ($\frac{1}{5}$ mg. total solids) is administered twice a day for one week.

Four of the extracts having a high degree of potency show no trace of the thyrotropic hormone by the following tests: (1) failure to raise the low metabolic rate of the hypophysectomised rat; (2) failure to prevent the atrophy of the thyroid which occurs after hypophysectomy (Fig. 3); and (3) lack of effect upon the thyroid of the immature guinea-pig. These extracts also have no effect upon body growth.

Extracts boiled for 30 minutes still show adrenotropic activity. Active extracts were found to be ineffective when administered orally.

Our purest extracts of the adrenotropic principle have been obtained from a fine flocculence which has separated out on concentrating at pH 5 to 6 a 75 per cent. acetone-soluble fraction. This latter has been obtained as a by-product in the purification of the thyrotropic fraction in the filtrate of the original aqueous extract after the $Ca_3\ (PO_4)_2$ adsorption treatment to remove growth hormone, as in the "Q" process.[2]

THE TECHNIQUE OF SUPRAPUBIC PROSTATECTOMY

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During the past year I have had the opportunity of seeing many masters of the suprapubic operation for removal of the prostate gland. The results of this observation may be of value to those who are interested in the subject. It will make for simplicity to describe the operation as I now perform it. The technique is essentially that used at St. Peter's Hospital, London, with modifications suggested mainly by Prof. A. von Lichtenberg's practice in Berlin.

In the early days of the operation the incision was a small one and the whole procedure was carried out by sense of touch only. The results were surprisingly good in the hands of Sir Peter Freyer; but in those of most surgeons blind prostatectomy had an unenviable mortality. In more recent times many factors have contributed to the reduction of this mortality. The most important of these, in the order of their importance, are:—

1. Recognition of impaired renal function and its careful pre-operative treatment.
2. Adequate control of hæmorrhage.
3. Improvement in methods of anæsthesia.
4. Thorough post-operative supervision.

At the present time it is probably fair to state that when the operation is performed by genito-urinary specialists, the mortality of prostatectomy is in the neighbourhood of 10 per cent.

ANÆSTHESIA

In this paper we are concerned with the operation only. The pre-operative preparation will not be discussed and the patient is presumed to be in a condition suitable for prostatectomy. First of all, the anæsthetic must be considered, and it is here, I feel, that the greatest advance has been made in recent times. Formerly it was the custom to employ spinal analgesia supplemented with gas-and-oxygen; this was a great improvement on general anæsthesia with ether. Now avertin narcosis with peripheral nerve block appears to be a further step towards the ideal.

The technique is as follows.

The rectum is emptied by an enema of sodium bicarbonate, ʒi to the pint; 100 mg. per kg. body-weight of freshly prepared, tested, warm avertin solution is run into the rectum while the patient is in bed. Sound sleep ensues in a few minutes. The patient is now taken to the operating room and placed on his left side on the table. An epidural injection of 30 c.cm. of a 3 per cent. solution of novocain is made through the hiatus sacralis into the sacral canal. The patient is turned on to his back. A soft rubber catheter is passed and the bladder distended with boric solution. The catheter is clamped and left in situ. Infiltration of a suprapubic area with 1 per cent. novocain is now carried out. The area is diamond-shaped and extends from the umbilicus to the pubes and for three inches on either side of the midline. The infiltration involves the skin in the line of the incision from umbilicus to pubes. Novocain is also injected through the rectus sheath into the deeper parts of both rectus muscles. The needle is then passed into the space of Retzius in the midline so that the perivesical tissues are infiltrated; this last injection need be made in the lower half only of the diamond area. If the skin has been infiltrated in the line of the incision first, the anæsthetic will have taken effect here by the time the injection elsewhere is completed.

THE OPERATION

The surgeon stands by the left side of the patient who is lying flat on his back. Skin and superficial fascia are divided in the midline from pubes to umbilicus until the linea alba shows in its whole subumbilical length. The fat is carefully divided through its fine attachments to the front of the recti sheaths and dissected laterally so as to expose a lozenge-shaped area of the aponeuroses. Next a transverse incision, three-quarters of an inch long, is made across the lower part of the exposed linea alba. This incision opens both rectus sheaths and the precise position of the linea alba is defined. The value of this manœuvre will be appreciated by those who have just missed the midline and have had to damage the medial edge of one or other rectus muscle in making the vertical incision over the bladder. It is now easy to divide the linea alba accurately in the mid-sagittal plane from pubes to umbilicus. The division may be made boldly in its lower half, but carefully in the upper, because here the peritoneum is immediately subjacent.

Having divided the fibrous tissues, the extraperitoneal and extravesical fat is exposed. With the gloved finger this fat is gently separated from the bladder. A large damp swab is then used gently to press this fat and any little contained apron of peritoneum upwards for 3 or 4 inches above the pubes. The extravesical veins now show up well and the tense bladder is felt below them. The scalpel, with its cutting edge turned towards the symphysis pubis, is plunged boldly into the bladder in the midline. The left index and second fingers are inserted into the wound thus made while the assistant uses the sucker to remove any boric solution which may escape. The nearer edge of the bladder is picked up with a large round bodied needle carrying 10 inches of catgut. This suture is clamped by its ends and used as a sling. A similar sling holds up the right margin of the bladder wound. The sucker empties the bladder while the incision in its wall is extended upwards until the wet swab covering the extraperitoneal fat is reached. At this point a third sling is passed through the bladder at the apex of its ventral opening.

The surgeon's right hand is now passed into the bladder for the first time. The first and second fingers feel for the enlarged prostate with the catheter projecting from its summit. The ulnar border of the hand sinks between the recti muscles and rests upon the wet swab covering and protecting the extraperitoneal fat. Enucleation is begun, preferably behind the so-called median lobe. Here the gloved fingers endeavour to insinuate themselves through the vesical mucous membrane into the groove between the gland and the internal sphincter muscle. In the case of large prostates this is usually easy. Enucleation is carried out by sweeping the fingers round to the right then to the left and across the front in the plane between gland and muscle. Finally the urethra is torn across at the apex of the prostate, the gland is unthreaded from the catheter traversing it and removed.

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[2] Collip, J. B., Selye, H., and Thomson, D. L.: Proc. Soc. Exp. Biol. Med., 1933, xxx., 514.

Often it will be found that it is difficult to insinuate the fingers through the bladder mucosa behind the middle lobe. This difficulty is the more frequently encountered since the sacral analgesia produces such relaxation of the supporting muscles that the prostate is not held up against the pressure from above. Moreover there is no left forefinger in the rectum nor hand against the perineum to steady the lax pelvic floor. Therefore in any but large prostates enucleation must often be started in one of two ways.

First the forefinger may be passed into the internal meatus alongside the catheter and the prostate burst from within outwards. Usually the tear will occur forwards and the fingers will recognise the splitting of the gland from its fascial surroundings by the smooth and firm surface of the capsule. Tearing laterally through the substance of the prostate can only do harm and removal must not be continued unless the separation is made in the right plane. In the event of failure of this method to allow enucleation to proceed smoothly, the operator must expose the prostate so that he can see what he is doing. Exposure is accomplished by lifting up the bladder wound margins by means of the three slings. This opens a triangular wound with its apex towards the umbilicus and its base towards the symphysis. Into the wound are inserted the vesical blades of a Thomson-Walker bladder retractor and the instrument opened. The upper blade is then applied on top of the swab protecting the extraperitoneal fat. This blade is drawn cranially and the interior of the bladder is widely exposed. The assistant's right hand holds the lower end of the bladder wound back behind the symphysis with the retractor for that purpose. The prostate is now easily seen.

The surgeon may either make an incision with the scalpel from the internal meatus posteriorly and laterally through the gland, or he may use blunt-pointed scissors to divide the mucous membrane covering the back of the middle lobe until the glistening prostatic capsule is well seen. The retractor is then removed and the fingers reinserted. The incision made is felt and entered, and the fingers are now able to work their way round the gland and effect its removal.

DISSECTION OF THE GLAND

Failure to enucleate with the gloved finger demands *that the gland be removed by dissection.* This is usually necessary only in the small fibrous glands and is best done with long-handled scissors with blunt-pointed blades curved on the flat.

The prostatic cavity is filled with a warm moist gauze pack, and any blood or blood clot is removed from the bladder. The Thomson-Walker retractor is inserted as described above, and the patient placed in the Trendelenburg position. On the removal of the gauze pack bleeding vessels may be seen, which are secured by long-pressure forceps. The prostatic cavity is clearly visible and may be examined minutely if a good headlamp is worn. Next a long-pressure forceps is used to take a firm hold of the shelf of mucous membrane overhanging the posterior part of the prostatic cavity. A wedge (base forwards) is removed by cutting this forceps free with a good width and depth of this shelf. This manœuvre guards against post-prostatectomy obstruction. due to the formation of a diaphragm between bladder and prostatic cavity.

Any bleeding vessels in the torn edge of the bladder mucous membrane may be surrounded and tied off with a catgut stitch. Those deep in the cavity may be ligated with difficulty; they often stop bleeding on pressure; it is simplest and easiest to coagulate them with a diathermy electrode touched against the forceps controlling them.

Hæmorrhage ought now to be completely arrested. If there is any doubt about this it is much better to pack the cavity with gauze soaked in flavine and paraffin emulsion than to risk post-operative bleeding. In any case the catheter is now withdrawn by an orderly until its eye rests in the middle of the prostatic cavity. The catheter is fixed to the penis at this level. Any diverticula or calculi are removed, the patient is placed in the horizontal position and closure of the wound is started.

A red rubber drainage-tube, one inch internal diameter, is taken and a slice half an inch wide cut out of one side in the whole length of the tube. The tube is adjusted so that when projecting half an inch above the skin its deep end reaches to a level in the bladder one inch above the trigone. This drain is held by the assistant in the lower end of the bladder wound while the operator removes the retractor and changes the blades. With its cross-bar towards the patient's feet the retractor is reinserted to hold back skin and superficial fascia and muscles. The bladder wound is held up by its three slings and closed down to the drainage-tube with a continuous suture of fine 00 chromic catgut. The protecting swab is removed from the extraperitoneal fat, and care is taken that no tear of the delicate peritoneum has occurred.

The retractor is now adjusted to release the muscles and hold back skin and fat only. Two mattress sutures of No. 2 chromic catgut are inserted through the whole thickness of the recti muscles and their sheaths. The ends of these sutures are clamped and left long, while a continuous stitch of No. 1 chromic catgut unites the cut margins of the linea alba from the umbilicus to the drainage-tube. The mattress sutures are then tied firmly. A continuous suture of dermol closes the skin incision and a single stitch secures the drainage-tube at the lowest end of the wound. Voluminous dressings of gauze are applied, the catheter is clamped at its extreme end, and fastened securely to avoid its being accidentally withdrawn.

AFTER-CARE

It is very important at this stage for the surgeon to superintend the transport of the patient back to his bed. Old men in the Trendelenburg position for half an hour or more may not respond immediately to the change back to the horizontal posture. Therefore it may be necessary to keep the patient's head a little lower than his feet for half an hour or so. Usually this is quite unnecessary and no weakening of the pulse is noted when the patient is placed horizontally. When, however, the pulse fails on levelling, arrangements must be made to take the patient back to bed with his head below the level of his heart and to keep him thus till he can safely be put in the horizontal position.

In bed the patient is kept warm and dry. Morphine is given for restlessness and pain. Six or eight hours after the operation the patient is usually stuporose; he will talk if spoken to; but is amnesic. The dressings will be soaked with blood-stained urine and must be removed. Have the following ready sterilised :—

(1) Hamilton Irving's suprapubic box (celluloid pattern with two drain tubes) complete with tubing; (2) thymol

ointment; (3) an irrigating can containing 1/15,000 silver nitrate solution this irrigator should have a Murphy drip attachment in the middle of five feet of tubing; (4) a glass connector to join the irrigator to the catheter; (5) a gauze bag, two inches diameter, containing boric acid crystals.

Soiled dressings are removed. The skin is dried and smeared thickly, over the whole area to be covered by the box, with thymol ointment. The box is adjusted to fit snugly and the bag of boric crystals placed in it. The irrigator is connected to the catheter and continuous irrigation started. The urethra is protected from an ascending urethritis by surrounding the catheter at the external meatus with a swab soaked in glycerin. By this means the bladder is kept free from sepsis, the urine is prevented from decomposing and irritating the skin. Blood clots are very unlikely to form because there is no stagnation in the prostatic cavity.

It will be remarked that there is no small drainage-tube in the space of Retzius. In my experience this tube is unnecessary because the space has been opened behind the pubes as little as possible and any recess in that vicinity remaining after closing the wound is drained effectively by the tube passing from the bladder. The slot cut in the whole length of this tube leaves the drain accessible to any fluid wanting to escape from its neighbourhood, and as the slot points towards the pubes, the drain may be said to be open to the space of Retzius.

The patient's general condition is improved as quickly as possible by encouraging the intake of much bland fluid. He is encouraged to breathe deeply and to move his limbs. Fruit juices are pushed both for their glucose content and for their laxative effect. The bowels are likely to move naturally on the third day after operation; enemata are avoided as far as possible. If a gauze pack has been left in the prostatic cavity to control oozing, it is best left till the third post-operative day. Under the continuous irrigation system the gauze will not become offensive, and it is likely to separate more easily after three days than at an earlier time. For the removal of this gauze it seems to me best not to use general anæsthesia, such as nitrous oxide. I say this because of the great shock that used to be noted by every house surgeon, who, acting on the instructions of his chief, removed such a pack from prostatic cavity or gall-bladder fossa under gas anæsthesia. The shock appeared to be caused by the violent stimulation of afferent nerves when the sticky gauze was suddenly withdrawn. The gauze was usually removed after 24 hours, a time when it was most firmly adherent, and the withdrawal was sudden because a strong pull was necessary to start it, and it came with a rush. I prefer to saturate the gauze in the prostatic cavity with novocain, 100 c.cm. of 1 per cent., run in through the irrigator. The pack may then be pulled out gently without causing the shock associated with the older method.

The suprapubic drainage-tube is kept *in situ* as long as there is any blood clot or blood staining to be seen in the urine. As soon as the drainage is quite clear the tube is removed whether this be on the second or fifth day after the operation. The tube is shortened at any time if it is causing pain by touching the trigone of the bladder. After an operation such as this, it will be realised that the bladder forms an elastic tube gently moulding itself around and lightly gripping anything within its grasp. The rubber tube is so gripped and is unnecessary for the conduct of urine to the surface. Its purpose is to ensure a free exit for clots. Therefore remove it when there are no clots to be seen, and the urine is free from blood.

I do not like rubber bags because they appear to me to contravene the principles that ought to guide intravesical surgery. They are unnecessary, and an unnecessary foreign body in a raw area of the bladder retards healing. They deform the urethra and its musculature by straightening out that channel and by insinuating themselves too far into the external sphincter. They are often too small to exert pressure on the torn edge of the vesical mucous membrane where bleeding is most profuse. Sepsis may occur in dead spaces not accurately obliterated by the bag in the prostatic cavity. Healing is retarded and sloughing encouraged by the ischæmia caused by the bag's pressure.

The methods described above are adequate for hæmostasis, especially when the coagulating diathermy current is available. After removal of the drainage-tube the continuous irrigation is kept up for 24 hours, then the intra-urethral catheter is removed. The shorter the time the catheter dwells in the urethra the less danger there is of epididymitis consequent on posterior urethritis. Therefore clean up the bladder as quickly as possible and remove all foreign bodies from it and the urethra.

I have not used continuous suction drainage for the bladder after prostatectomy because healing seems to occur as quickly in a prostatectomy wound as in any similar incision. Urine, when prevented from decomposing, does not appear to delay healing of either bladder or tissues unaccustomed to contact with this fluid. Under the above régime the patient will pass a few drops of urine per urethram about the tenth post-operative day, and the wound will be dry and firmly healed by the fourteenth day. Control of micturition is established in the next few days, and of course the frequency is marked because the bladder is small and inflow into it is, or ought to be, over 100 ounces per 24 hours. The patient may be lifted into a chair three days after his wound has healed. He ought to be able to go home within four weeks of his operation. It is advisable for fat patients to have a well-fitting belt applied before they are allowed out of bed. A pendulous abdomen is too great a strain for the uniting linea alba.

SCOPE OF THE OPERATION

The part removed in this operation consists, I believe, of the whole prostate gland except that portion below and behind the ejaculatory ducts. In other words the part removed consists of the middle "lobe," lateral "lobes," and anterior commissure. The posterior "lobe" is left behind and usually the ejaculatory ducts are intact. It is not easy to see how the part removed in this operation can be an adenoma which has displaced the normal prostatic tissue to form a pseudo-capsule for itself; one difficulty is that the specimen is symmetrically disposed on each side of the midline, and an adenoma is not likely to be invariably so symmetrical. The other difficulty is that the prostatic urethra forms part of the specimen. An adenoma starting at one point in the gland could not surround that tube and fuse with itself to form a symmetrical whole traversed by the urethra. Surely an adenoma, however large, must be on one side of the urethra. I therefore share the view of those who hold that in senile prostatic hypertrophy the part of the gland removed by the suprapubic operation consists of the whole prostate, except that portion below and behind the ejaculatory ducts.

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PSORIASIS AND RHEUMATISM

A COMPARISON

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It is a matter of common observation that psoriasis is often associated with rheumatic infection, both in individuals and in families, but opinions differ as to whether there is any direct relationship between them. No figures are available to show the incidence of rheumatism in the family history of patients with psoriasis, and it was therefore surprising to find, on inquiry into a series of 53 psoriasis cases, that 80 per cent. gave a history of some form of rheumatic infection in a near relative, whilst only 35 per cent. gave a familial history of psoriasis. Further, 70 per cent. of these psoriasis patients proved to be suffering from arthritis or rheumatism. The figures seem to invite a. review of the relation between the two conditions.

There is a curious analogy between psoriasis and rheumatism as they occur in children. Both are rare under the age of 5; both are limited to temperate climates, and they have a similar seasonal incidence; both occur in a lag period following tonsillitis or sore-throat and respond to treatment with salicylates; and in both a first attack seems to predispose to further attacks.

As a result of research work in different parts of the world it has been finally established that the causal organism in rheumatic infection is a streptococcus, the exact nature of which is still undetermined. Seasonal and climatic incidence of the disease seems to be explained by the observations of Coburn.[1] He has shown that there is a seasonal rise in New York in the prevalence of *Streptococcus hæmolyticus* in the upper respiratory tract, that these organisms are seldom found in the upper respiratory air-passages in Porto Rico, and that in rheumatic patients taken from New York to Porto Rico the *S. hæmolyticus* tends to disappear and the patients lose their liability to active rheumatic manifestations, both of which recur when they return to New York.

A relationship between tonsillitis and rheumatic manifestations is now generally recognised, but the literature contains few records of an associated history of throat affections with psoriasis. Winfield,[2] however, has reported an interesting series of six cases of psoriasis following tonsillitis, and of the cases I have recently investigated 50 per cent. give a history of tonsillitis or throat trouble, and it seems that this association should not be dismissed as a mere coincidence without further consideration.

THE HISTOLOGY OF THE RHEUMATIC AND PSORIASIS LESIONS

If we examine the histopathological characteristics of the psoriasis lesion and the lesion of acute rheumatic infection the analogy between psoriasis and rheumatism appears to be further strengthened. Lesions which are morphologically similar to the subcutaneous nodules of acute rheumatism can be produced experimentally by injecting streptococci subcutaneously, and much has been learnt from these experiments of the manner in which the lesions due to rheumatic infection develop. No one has so far succeeded in experimentally producing cutaneous lesions similar to those of psoriasis, but the histopathology of psoriasis has been most carefully investigated, and Civatte[3] has given a detailed description of the manner in which the lesions develop.

In the evolution of the experimental rheumatic nodule and the psoriasis lesion there is first an exudative reaction characterised by œdema and congestion of vessels and a migration of leucocytes, chiefly mononuclear in the early stages, but at a later stage polymorphonuclear. Following this there is in both a proliferative reaction which affects the cells in the immediate neighbourhood of the lesion. In psoriasis these cells are the cells of the rete malpighii, and their proliferation leads to the excessive production of scales which is such a distinctive feature of the psoriasis eruption.

In the rheumatic nodules the cells affected in the immediate neighbourhood of the lesion are: (1) cells of the reticulo-endothelial system, "fibrocytes"[4]; (2) connective tissue cells, "fibroblasts," and the result of the proliferative reaction of these cells is the production of the submiliary nodule, the typical lesion of rheumatic infection.

Lastly, in both the psoriasis lesion and the rheumatic nodule, the reaction may pass on to the formation of abscesses which in both instances are sterile. In psoriasis these abscesses, first described by Munro and Sabouraud in 1904, are regarded as a unique and characteristic feature. They result from an increased exudation of polymorphonuclear leucocytes, which become imprisoned in the upper layers of the rete malpighii and which may be so extensive as to disintegrate the cells of the rete to such an extent that abscesses are formed. When this occurs the lesions of pustular psoriasis[5] are clinically demonstrable. The conditions which conduce to the formation of abscesses in psoriasis are not known.

In the rheumatic nodule abscesses are, as in psoriasis, associated with an increased exudation of leucocytes, but certain conditions which lead to their development in rheumatic infection have been demonstrated experimentally by Clawson.[6] He has shown that, by increasing the dose of streptococci, abscesses may be produced in normal or immune animals, but that in sensitised animals abscesses appear after doses which produce either no noticeable effect or only small firm nodules in normal or immune animals.

From this brief review it will be observed that histologically the difference between the two conditions appears to be due to a difference in the tissues in which the reaction is localised—epidermal in psoriasis, subdermal in the rheumatic nodules.

THE PART PLAYED BY ALLERGY

Variation in the type of the reaction, due to the nature of the tissue in which the reaction is localised, is a characteristic of allergic conditions, and Clawson's experimental work has furnished proof that allergy plays a very important part in the production of the rheumatic nodule. No such experimental evidence is forthcoming for psoriasis, but so many of the features which characterise allergic conditions are manifested in psoriasis that the clinical findings point to the conclusion that in psoriasis we are dealing with a state of allergy. One need only mention the familial predisposition, the appearance in apparently healthy persons, the sudden outbreaks, the spontaneous remissions, the diversity of causes which seem to precipitate attacks, and the effect of disturbances of the sympathetic nervous system.

But, as in all allergic conditions, the difficulty in psoriasis is to discover the antigenic factor, and so far every line of research has failed to achieve this object, and the cause of psoriasis is still unknown. Hypothetical toxins due to defective metabolism or disturbed renal function have been suggested as causes, and special stress has been laid on the gouty diathesis owing to the frequency of the association of psoriasis with various arthropathies. How often has this same theory of a gouty diathesis been invoked to explain the occurrence of rheumatism, and how altered is our conception to-day of the causes underlying rheumatism?

The types of arthritis which are found in association with psoriasis are not represented merely by the various arthropathies which accompany rheumatism. A small number of cases, in which recurrent attacks of psoriasis synchronised with attacks of arthritis complicated by hydrarthrosis, led Garrod and Evans[7] to suggest that psoriasis with arthritis might be regarded as a definite clinical entity. Such a differentiation scarcely appears tenable when we consider the other types of arthritis with which psoriasis is found to be associated. My own records include cases of typical rheumatoid arthritis, one case of osteo-arthritis of the lumbar spine in a man of 58, in whom the eruption appeared for the first time with the onset of arthritis, cases of arthritis following recurrent attacks of rheumatic fever, and many cases with fibrositis and grumbling joint pains. Must there not be some common factor underlying all of these conditions in which the same skin eruption is found?

The common factor in rheumatic affections has been established, and a streptococcal origin accepted, but more recently still Cecil, Nicholls, and Stainsby[8] have isolated a streptococcus from the blood and joints of cases of infective arthritis, and in 1931 they *recovered a similar organism in rheumatoid arthritis.* It appears therefore that a streptococcal infection is the common factor underlying the conditions with which a skin eruption of psoriasis is associated, and that psoriasis occurs in persons predisposed to rheumatic infection, and that it is influenced by the same environmental conditions as predispose to rheumatism.

Permanent damage to the heart is the most serious risk of rheumatic infection, but personally I have never observed a psoriasis patient with valvular disease due to rheumatic infection. It is a common saying that psoriasis occurs in the healthy, and this statement would acquire a deeper significance if, inter alia, the observation was confirmed that the subjects of rheumatic infection who suffer from psoriasis do not develop rheumatic heart trouble. The protective mechanism of the skin is generally recognised. May it be that we have in psoriasis another example of this mechanism at work, with its beneficent effects?

CLINICAL ASPECTS OF PSORIASIS AND RHEUMATISM

The constitutional symptoms in an acute generalised attack of psoriasis, even when an exfoliative dermatitis has supervened, are never so severe as in acute rheumatic infection. Many patients, however, never suffer from a generalised attack but, like the subjects of rheumatic infection, develop attacks of varying degrees of severity which clear up only to recur at some future date, it may be with a change of season, or associated with some other cause. In both psoriasis and in rheumatism these attacks show extraordinary variability in severity, in extent, in site, and in duration, and the periods of remission are similarly variable. They tax the ingenuity of the medical attendant to discover a remedy.

The old chronic rheumatic who haunts out-patient clinics with the familiar story of exacerbations of joint and muscle pains bears a strong resemblance to the chronic psoriatic with lesions in the neighbourhood of the joints and a varying eruption. Salicylates are of no avail for these patients, and they have recourse to endless methods of local treatment and every form of physical therapy. In many instances it is the same patient who suffers from rheumatism and psoriasis, and one is frequently told that the pain is relieved when the eruption is worse.

Subjective symptoms are notoriously misleading but they cannot be ignored, and the belief of the sufferer from psoriasis douloureux that there is a direct relationship between the pain and the skin eruption might seem to be confirmed by the similarity revealed by a comparative review of the ætiological, pathological, and clinical features of psoriasis and rheumatic infection.

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DINITRO-O-CRESOL AS A STIMULATOR OF METABOLISM

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For some time past the pharmacological action of the nitrophenols and allied compounds has been under investigation in our laboratories, and the recent paper of Cutting, Mehrtens, and Tainter[1] prompts us to give a preliminary account of our investigations with a compound which we believe to be superior to the one employed by them, which was 2:4-dinitrophenol.

It has been known for many years that certain nitrophenols are capable of causing a marked increase in both the temperature and the oxygen consumption of experimental animals, but hitherto the application of this phenomenon to the stimulation of metabolism in the human subject has not been considered. The American authors referred to above describe a series of cases treated by the oral administration of 2:4-dinitrophenol in daily doses of 3 mg. per kg. body-weight. A continuous diminution of weight has resulted, and they are unable to find any evidence of toxic effects in the doses given. That the compound itself is toxic in large doses there can be no doubt, and it was with the object of producing a body with similar basal metabolic rate-raising properties, but with a lower toxicity, that the investigations about to be described were undertaken.

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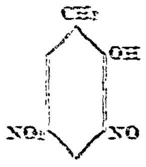
[1] Cutting, W. C., Mehrtens, H. G., and Tainter, M. L.: Jour. Amer. Med. Assoc., July 15th, 1933, p. 193.

The method employed consisted of observing the oxygen consumption of guinea-pigs by a modified Krogh technique, and when a steady figure had been obtained for the basal rate the substance to be tested was injected, or alternatively administered by mouth, and the effect on both temperature and oxygen consumption was studied. A great many compounds have been investigated, but up to the present the most promising appears to be dinitro-o-cresol, the formula of which is as shown.



A typical example of the increase in oxygen consumption may be seen in the following experiment. The basal oxygen consumption rate of the guinea-pig, measured in c.cm. per g. guinea-pig per minute, was 0·0135; the temperature was 97° F. Dinitro-o-cresol (8 mg.) dissolved in sesame oil was administered by subcutaneous injection. One hour afterwards the oxygen consumption had risen to 0·0376 c.cm. per minute and the temperature to 100·8° F. Four hours later the temperature had reached 102·8° F. Similar experiments with 2 : 4-dinitrophenol produced a rise of about one-third the magnitude. Observations on the toxicity of these two compounds indicated that they are of the same order. Both compounds are active when administered by mouth.

It would appear from these observations that the dinitro-o-cresol compound is more suitable for clinical experimentation since about one-third of the amount is required to produce the same effect as with the dinitrophenol. The clinical application of these compounds is at present under observation, and it is hoped to report on the extension of this work at a later date.

The pharmacological experiments described were made possible by a grant from Messrs. British Colloids, to whom we express our thanks.

Clinical and Laboratory Notes

SOME MODIFICATIONS OF THE SIGMOIDOSCOPE

By J. Cosbie Ross, Ch.M. Liverp., F.R.C.S. Eng.

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THE importance of sigmoidoscopy, both in diagnosis and treatment, is increasingly recognised. L. E. C. Norbury[1] says :—

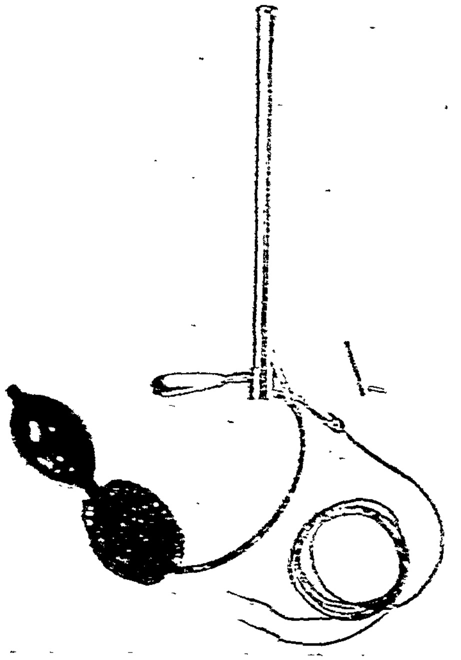
> "I would again lay stress on the importance of sigmoidoscopy in middle-aged patients complaining of 'piles' of recent origin, since piles are often a result of a more serious condition higher up the bowel."

E. L. Young, Massachusetts,[2] writes in a similar strain :—

> "It should be emphatically stated and reiterated again and again that any change, however slight, in the normal bowel behaviour of any individual without any known cause, particularly in the cancer age, persisting for more than a few days after adequate treatment is started, should demand the most painstaking investigation."

Young further points out that in carcinoma of the colon the first X ray examination is negative in 10 per cent. of cases.

Since sigmoidoscopy is now a routine part of all colonic investigations and is frequently performed in the consulting-room, can it be said that those sigmoidoscopes in common use give uniform satisfaction? The instrument is so simple that it should be possible to eliminate those minor hitches and annoyances which so frequently mar the perfect performance of the examination. By combining the better points of two well-known instruments I think that it is possible to do this.



The sigmoidoscope as modified. The small inset shows the light carrier and lens.

Since Howard Kelly, of Baltimore, in 1895 introduced the use of straight tubes of various lengths, illuminated by reflected light, there have been numerous modifications of the sigmoidoscope. Before this date there had been attempts to examine the lower bowel visually, notably Bodenhamer's long flexible speculum, introduced in 1868. This remarkable instrument was fitted with an involved system of mirrors, but apparently it was too complicated to be practicable. Probably at the present time the two sigmoidoscopes in most popular use are Strauss's tube in this country and Yeomans's in America.

In Yeomans's sigmoidoscope illumination is direct, and is obtained from a powerful electric bulb mounted in a side tube, joining the main tube at an oblique angle near the proximal end. A plano-convex lens refracts the collected rays at a compensating angle to the light carrier and focuses the light at the distal end of the tube.[3] The only part of the illuminating apparatus projecting into the main tube is the lens, so that there is a smooth, unobstructed lumen to facilitate the passage of probes, alligator forceps, &c. One possible criticism of this method of illumination is that some slight reflection of the rays occurs should the interior of the sigmoidoscope be highly burnished. This, however, does not occur to any appreciable extent as the surface of the metal is invariably dulled by sterilisation by boiling.

Lyon and Barth[4] in 1922 described a sigmoidoscope fitted with proximal illumination, but in their instrument the light-holder lies in the interior of the proximal end of the tube, and must therefore produce some obstruction to the passage of instruments. The distal illumination of the Strauss sigmoidoscope not only impedes the passage of instruments but is always liable to obscuration by fæcal contamination. Time is wasted in passing the distal electric bulb on its holder along the tube. Again, the small electric bulb requires minute adjustment of the rheostat, burns out rapidly, and stands little handling. Every surgeon has experienced the annoyance of flickering illumination and a poor contact, due to the length and slenderness of the holder. Harvey's modified sigmoidoscope,[5] while avoiding fæcal obscuration by providing a glass-protected slot for the holder, does not deal with what is the main objection to the instrument—i.e., the long, slender light-holder, producing a poor contact.

In the sigmoidoscope to be described, Yeomans's admirably simple and effective method of illumination is used, but the other features of his instrument are considerably modified. These are :—

1. The length of the tube is 12 inches, which is the most generally useful size. (Yeomans's tubes are interchangeable, and are respectively 10 and 14 inches in length.)
2. The distal end is thickened in order to provide a broad rolled edge. This safety device was advocated many years ago by Lockhart-Mummery [6] and has been embodied in numerous modifications of Strauss's instrument since then.
3. The distal end is at right-angles to the axis of the tube. Many sigmoidoscopes, including Yeomans's, are designed with an oblique distal end. This is a mistake, as the obliquity tends to distort the even roll of the mucous membrane during the act of withdrawal of the tube, and which is of such diagnostic assistance.
4. A handle is provided. (Yeomans relies on a flange with a milled edge.)

The usual pneumatic rubber hand-bellows is connected with the detachable proximal cap. The whole instrument, with the exception of the light-holder, may be sterilised by boiling.

In the sigmoidoscope described above no new feature is introduced, but the respective advantages of the two older instruments are combined and utilised. Using this sigmoidoscope, and with the patient in the genupectoral position, many of the minor hitches of sigmoidoscopy are eliminated, and such procedures as the removal of a piece of growth for microscopic section are facilitated. The instrument is made by Messrs. Alexander and Fowler of Liverpool.

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INTESTINAL OBSTRUCTION BY GALL-STONES

BY H. GARDINER, M.S. LOND., F.R.C.S. ENG.

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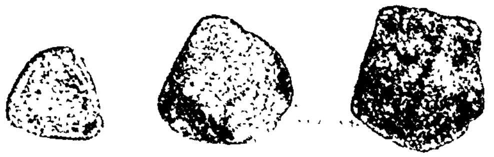
THE following case of intestinal obstruction by gall-stones is perhaps worthy of record for two reasons—namely, (1) the site of the obstruction, and (2) the absence of symptoms that might have been expected.

Mrs. A. B. was of normal build and appearance for her age (78). Her health had been good except for occasional attacks of indigestion with flatulence and constipation.

In October, 1930, she had a first attack of biliary colic. There was slight pyrexia lasting for three days, and the gall-bladder was just palpable. There was no jaundice and the attack subsided in eight days. In May, 1931, she had slight pain over the gall-bladder for three days. On Dec. 12th, 1931, she began to have abdominal discomfort with flatulence, and sought medical advice on Dec. 20th. There was a history of pain in the epigastrium, retching, and looseness of the bowels during the preceding 24 hours. She was tender over the gall-bladder, which was just palpable. There was flatulence but no colic. The temperature was 99° F. and the pulse-rate 92 per minute. There was much abdominal distension. Castor oil gave a good result. Her condition improved and with a mild aperient pill the bowels acted daily until Dec. 24th, when she again became distended. Castor oil gave a poor result, but an enema the next morning gave a satisfactory result with much flatus. She became much more distended and began to have intestinal colic with visible peristalsis. A diagnosis of intestinal obstruction was made by Dr. S. G. Askey, under whose care the patient had been and to whom I am indebted for the above history.



The stones as they were lying in the small intestine (one-quarter natural size).

I saw her first about 10.30 A.M. on Dec. 25th, and she presented a typical picture of small intestinal obstruction. There was no feature to distinguish the case from any ordinary case of mechanical obstruction of the small bowel, nor was it possible to form any definite opinion as to the cause of the obstruction.

The patient's general condition was good and she was removed to a nursing-home, and early the same afternoon the abdomen was opened under general anæsthesia, administered by the open ether method. The cause of the obstruction was soon found to be an impacted gall-stone of large size, which completely blocked the small bowel. the walls of which were stretched round the circumference of the stone. An incision was made immediately over the stone and this, with two smaller ones lying proximal to it, were removed, and the intestine sewn up by a double layer of catgut sutures in the ordinary way. The exact position of the stones was impossible to determine as the condition of the patient demanded as rapid an operation as possible. I satisfied myself, however, that there were several feet of collapsed bowel below the obstruction and several feet of distended bowel above it. The patient stood the operation well but developed signs of pulmonary congestion the following day and died 24 hours later from heart failure due to this cause.

The interesting features in this case are : (1) The position of the obstruction, which was at least several feet above the common site—the ileocæcal valve. (2) The three gall-stones (see Figure) must have at one time completely filled the gall-bladder, and could not possibly have been passed into the bowel via the cystic and common ducts. (3) There was nothing in the history to suggest any acute inflammatory crisis due to any suppurative cholecystitis followed by rupture into the bowel. (4) The change of position of the stones, the two apical ones lying behind the large stone which must have occupied the central position in the gall-bladder.

BRITISH MEDICAL ASSOCIATION

ANNUAL MEETING IN DUBLIN

SECTION OF PUBLIC HEALTH

THE first discussion in this section amounted to a survey of the present state of

The Housing Problem

in Great Britain and Ireland, and a forecast of the probable lines of development in the near future. Dr. M. J. RUSSELL (M.O.H., Dublin), who presided, called at once on Mr. SÉAN T. O'KELLY, vice-president of the Free State Executive Council and Minister of Public Health, as the first speaker, remarking that for 25 years Mr. O'Kelly had been a member of the Dublin Corporation, had concentrated on housing problems, and was now urging the municipalities and local authorities throughout the Free State to speed up progress in this respect. Mr. O'KELLY stated that in the past Dublin and Ireland generally had been very backward as regards housing, but in the last two years a definite advance had been made; he now hoped to see in less than ten years an end of their housing problems and of their slums. It was on the medical officers of health in town and country that they must rely for leadership; great strides had already been made in instructing the community in public health and informing public opinion. The Government would support them fully.

OVERCROWDING IN ENGLAND

Dr. C. KILLICK MILLARD (M.O.H., Leicester) reviewed the present position, and outlined the provisions of the new (1933) Housing Act, which abolished the Greenwood subsidy for "ordinary" municipal houses, and proffered encouragement to the building societies. It was hoped that this abolition would lead to the concentration of municipal efforts on slum clearing. Local authorities and the Government would be authorised to share with building societies the risk entailed in advancing a higher proportion of the building costs of new houses; in practice this might mean that the societies would be willing to advance up to about 90 per cent. of the cost, instead of only about 70 per cent. Since the problem to-day was that of housing the poor, the houses so built must be "intended to let to persons of the working classes." It was improbable, however, that the rents would fall below 13*s*. a week, and thus would usually be beyond the reach of the poor. In the April circular (1331) of the Ministry of Health local authorities were urged to adopt a programme involving the preparation of:—

> (1) A list of areas for clearance, with information about the number of houses to be demolished in each, and the number of inhabitants; (2) a list of the areas in which improvement by reconditioning or otherwise was necessary; (3) a time-table of the initiation, progress, and completion of action to secure clearance or improvement of these areas; and (4) a time-table of re-housing coördinated with the displacements contemplated by the time-table of clearance operations.

It was urged that an immediate beginning should be made, and the Minister of Health asked to be supplied with a copy of the programme adopted not later than Sept. 30th. Dr. Millard pointed out that the character of the slum-dweller was of even greater importance than that of the slum-dwelling, and was the factor which presented by far the greater difficulty. Overcrowding, an aspect of the human factor, had also to be dealt with effectually before the slum problem could be solved. It was, he said, a serious defect of the previous Housing Act of 1930 that, while it made provision for the "individual" insanitary house, it made no provision for dealing with "individual" cases of overcrowding, the common cause of which was the large family, much more usual among the poor than among the well-to-do. Large families, poverty, and overcrowding worked in a vicious circle, sometimes one and sometimes another of these being the primary cause.

In the slums, said Dr. Millard, overcrowding was greatly intensified by the shortage of houses to be let at rents within the reach of the poor. Since 1919 nearly two million houses had been built in England and Wales (exclusive of those with a rateable value above £78, or £105 in the metropolitan area), and the population had not increased to any great extent. Yet there was still a demonstrable shortage of houses, and this was attributable to a very substantial increase in the number of families of smaller average size. In Leicester, for example, the actual population had only increased by 5026 during the inter-censal period. Allowing 3·6 persons to a house, this increase would call for 1396 new houses, but the number of dwellings had actually risen in that period by 7764. The average size of the family in Leicester was only 3·6 in 1932, as compared with 4·3 ten years before, but the number of separate families had increased by 7968, or 200 more than the increase in separate dwellings, so that the pressure of families on houses in Leicester was actually greater in 1931 than it was ten years earlier. The present policy of the Government would do nothing to relieve this strain. In any attack on the slum problem the claims of the children should come first; it was usually a waste of time to allow municipal houses to be occupied by families without children. Under the 1930 Act, where houses were provided in connexion with slum clearance, the practice of differential rents had become general; under such a scheme the number of dependent children had necessarily to be taken into consideration when fixing the rent. This had to a large extent removed the handicap on the man with a large family. It would be desirable for the same system to be applicable to existing municipal houses when they fell vacant. Housing departments were, however, afraid of differential renting, thinking that it would entail a great deal of work, and unsettle existing tenants. It was difficult to see why this should be so, especially if the scheme took the form of granting temporary rebates while leaving the standard rent unchanged. Those who ceased to need this assistance should no longer go on occupying a subsidised house, or should pay the full economic rent if they remained in it. Some plan of this kind was essential if the greatest possible use was to be made of the existing municipal houses.

RURAL HOUSING IN IRELAND

Dr. J. A. HARBISON (County M.O.H., Dublin) recalled the fortunate circumstance that attention had been focused on the question of rural housing in Ireland over 40 years ago, and that concrete measures had been taken in the form of the provisions of the Labourers Acts to provide healthy living accommodation in clean surroundings for workers engaged in agriculture, the staple industry of the country. For the past 50 years the purely agricultural labourer had been admitted from the housing point of view to be a distinctly uneconomic entity, for whom private enterprise could not afford to cater; the altered conditions following the war had now driven the artisan into the same position. The tremendous advantage to public health that had been derived from the provision of thousands of well-designed roomy cottages and allotments of land was well worth the annual charge of approximately £150,000 which fell on the rates in respect of them, for it would be readily admitted that the provision of proper housing accommodation was the most economic way of maintaining the health of the community. In addition to the 42,000 cottages already built, it had been estimated that the housing need of the rural worker in Ireland would not be fully met until another 22,000 cottages and plots had been provided. Some 12,000 of the cottages were required to house persons at present occupying dwellings that had been definitely pronounced unfit for human habitation. The Government in its recent generous housing measure had placed in the hands of local authorities the machinery and money with which to attack the problem. Moreover, to assist the small farmers and others, the State housing programme contained provisions to enable persons affected to reconstruct their existing dwellings or to provide new ones. Grants were available for the reconstruction of dwellings by rural workers and small farmers whose valuations did not exceed £25. Machinery was also provided for securing the repair or demolition of unhealthy houses, the local medical officer being very directly and vitally concerned in this matter. The intention of the statute was to remove as far as possible all housing which was conducive to ill-health. The greatest difficulty of the local medical officer lay in the small rural town, where badly lighted, damp, and otherwise unhealthy houses had in the course of time become huddled together, without effort at planning or thought for the consequences of congestion. There were in the Irish Free State 152 rural towns, each with a population of not less than 500; there were housed in them some 166,000 persons, and there was no urban authority in a single instance. For local administration government purposes they fell within the jurisdiction of the rural sanitary authority. In many of these small towns there existed a condition of squalor and poverty which was as bad as any found in city slums, and a heavy responsibility lay on the shoulders of the local medical officer to stimulate the provision of alternate accommodation. The progress recently made was heartening, but there could be no relaxing of effort until each family possessed a separate dwelling, soundly constructed, and set in clean and healthy surroundings.

HOUSING AND CHILDREN

In Dublin, according to Dr. W. R. F. Collis, the crux of the problem was the provision of better accommodation for children. When large blocks of flats were erected there should be arrangements made for the establishment of nursery schools. This would render it possible for good instruction as regards hygiene to begin quite early in life. There were in Dublin probably more children in families than anywhere else in the world, and the whole roof spaces of buildings ought to be utilisable for them. Persons who had specially studied the welfare of children should be invited to coöperate in the matter of housing; medical officers of health should do the planning, assisted by architects and engineers.—The sad lack of accommodation for perambulators in modern residences was regretted by Dr. E. H. T. Nash (M.O.H., Heston and Isleworth), who thought it should surely be possible to keep these sources of dirt out of living rooms. Adequate playing facilities should be made available, and a London case was cited in which attention to this seemed to have had very definite beneficial consequences on the health of adults as well as of children residing in the blocks of dwellings so equipped.—In his reply Dr. Killick Millard returned to this point, and agreed that it was essential to provide a decent environment for the upbringing of children, even if this involved an uneconomic rent, for otherwise there would be a strong tendency to perpetuate the existing deplorable conditions.

THE ECONOMIC SIDE

Several speakers in the discussion referred to the economic side of the suggested improvements. Mr. H. G. Simms (housing architect, Dublin Corporation) maintained that it was impossible to provide the ideal minimum house of five rooms at a rent that the poverty stricken class could pay. The present policy of the Dublin corporation endorsed all that the various speakers had advocated, and in his own city further progress seemed to have been made than was the case across the water. It had been possible to provide a house in the suburbs of Dublin with a living room, two bedrooms, and a scullery at a weekly rental of 7*s*. 6*d*. Four-story blocks of flats were going up in areas previously of the slum type, the weekly charge for each habitable room being about 2*s*. Such figures as these were obviously not economic, but Government grants and the city rates were rendering the scheme practicable. Two qualifications were exacted in the case of tenants: the income must be lower than £2 a week, and not fewer than four members of the family must be under the age of 21. Some reduction in the standard of housing was inevitable, and Dr. Millard agreed that this would be admissible provided that health considerations were fully borne in mind.—The President added that the housing problem in Dublin was complicated by the existence of thousands of old houses, formerly occupied by the richer classes but now used as tenement houses, each containing upwards of six to eight families. The Dublin corporation had erected 9500 new dwellings, but it had been calculated that at least 10,000 more were required before it could be claimed that a serious impression had been made on the existing situation. The corporation hoped to provide these dwellings by a building programme of 2000 annually for the next five years. Public feeling had been educated to the extent that no objection was raised by the ratepayers to the financial sacrifices involved, although the annual loss on existing housing schemes was equal to a rate of about 1*s*. in the pound. By the combination of the municipal housing rate and Government assistance two- and three-roomed flat dwellings with a bath and hot water system were being let at a weekly rent of 2*s*. per room, and three- and four-roomed cottages, similarly equipped, at 2*s*. 6*d*. per room. To relieve overcrowding, which was a grave problem in Dublin, the dwellings were allocated mainly on the basis of the number in the family in relation to the extent of its existing accommodation. This helped the poorer classes, which in Dublin and elsewhere had the largest families, and provided prior consideration for the children. Apart from the efforts of some philanthropic societies in Dublin, the corporation was the only body catering for the housing of the less well-off working classes. Dr. Russell thought that Dublin's solution of the city's special problem was the only practicable one—namely, to waive the principle of a general economic rent, and boldly let the dwellings at low rents which were within the means of the tenants.

SECTION OF ORTHOPÆDICS

At a meeting of this section, with Sir **WILLIAM WHEELER**, the president, in the chair, a discussion on the

Treatment of Chronic Osteomyelitis

was opened by Mr. H. **WINNETT ORR** (Nebraska). He had taken as his text, he said, the "prevention of accidents and complications in the course of the treatment in chronic osteomyelitis," whether arising spontaneously or as a sequel to a compound fracture. Just as in ordinary surgical practice, the various types of acute sepsis—such as erysipelas, gangrene, and acute septicæmia—had come to be looked on as avoidable accidents, so he believed that we should regard secondary sepsis, septic arthritis, septicæmia, disability, and delay in healing as preventable, and not as excusable, complications of osteomyelitis and of compound injuries. With this in view the line of treatment now known as the " Orr method " had been evolved. His first definite dissatisfaction with the ordinary methods of dealing with these conditions had been felt during his military service in France, in observation of the bad results following the antiseptic treatment of infected wounds and of compound fractures in particular. In referring to the original address of Lister, given before a meeting of the British Medical Association on August 9th, 1867, he found that wounds were to be protected against trauma and chemical irritation as well as from bacterial infection. This part of the programme we were neglecting in the ordinary routine of dealing with compound injuries. Ten years ago Mr. Winnett Orr had found that a drastic reduction in the number of dressings to which a wound was subjected caused a decided improvement in the healing of the wound and in the general condition of the patient. The main reason for this was that the introduction of additional organisms from outside was reduced, and that the wound was not irritated. The next stage had been to dispense with the secondary dressings. At first the treatment was applied to the chronic cases only; later more actively infected cases and more serious cases were found to do remarkably well under the same régime. The essential principles were: (1) the provision of really adequate drainage to every part of the wound at the first operation; (2) complete immobilisation of the limb in the best position attainable in a complete plaster-of-Paris cast; (3) débridement and thorough cleansing of the wound before encasing it in plaster, and no further dressing at all for four to six weeks. Every step of the method had been worked out by him, and he did not believe that modifications gave successful results. Where reports were made to him, as they were from time to time, of lack of success in applying the method, he found that either there had not been sufficient drainage, the application of the cast had given inadequate fixation, or the surgeon had been persuaded into doing more frequent dressings to satisfy other people that the wound was really going on well.

Mr. Winnett Orr showed a film illustrating the treatment of a compound fracture by his method. The fixation and extension of the limb were secured before operation was begun and not relaxed until the plaster was set. The operation of débridement and cleansing of the wound followed. Dead and dying tissue was removed and the wound was "saucerised," leaving a shelving edge. No sutures were inserted, and loose fragments of bone were not removed. The cavity was wiped out with iodine and packed with a sterile vaseline gauze pack, and the entire wound was covered with dry absorbent wool. The plaster cast was then applied, including in it the fixation apparatus, in this case an ice-tongs calliper. The first dressing was shown, done through a window in the plaster after four weeks, the cast being subsequently repaired. Mr. Orr also showed X ray photographs illustrating a case in which he had bridged a gap in a septic compound fracture, by means of a bone graft, with complete success.

Mr. R. F. J. **HENRY** (Dublin) said that for the last 18 months he had treated all cases of osteomyelitis coming under his care by the method advocated by Mr. Winnett Orr, and there could be no question of the suffering that had been saved to the patients by cutting out of the treatment the frequent and painful dressings which were a usual feature of these cases. The only real drawback to the method was the smell. This could best be controlled by nursing the patients in the open air on a balcony. He had also found it useful to cover the outside of the plaster with a layer of wool moistened with eusol. The covering of pus that formed below the dressing he believed to be definitely beneficial to the healing of the wound. The strictest attention to detail was essential if the method was to be successful, especially in the preliminary débridement and saucerisation of the wound. In compound fractures it was his habit to practice a limited débridement. In the old osteomyelitis case he thought he could hasten healing by removal of the sequestrum if present. Maggots had been advocated in the treatment of these chronically septic wounds; he was inclined to think that the success of treatment with maggots should be attributed to non-interference with the wound.

Prof. D. P. D. **WILKIE** (Edinburgh) congratulated two American surgeons on the amount of pain their researches had saved to children. Dr. E. C. Davidson, by his tannic acid treatment for burns, and Mr. Winnett Orr, by his method of treating cases of osteomyelitis with the minimum of dressings, had between them revolutionised our children's wards. Chronic osteomyelitis might follow on an acute infection, or it might be chronic from the start. In the very long-standing case with a discharging sinus which might have been present for 20 years, he was not convinced of the wisdom of operative interference; some patients actually refused to have the sinus closed, believing that it had some excretory value. The more recent case of chronic osteomyelitis he treated by the method described by Mr. Orr. Although he condemned diaphysectomy as a routine operation in acute osteomyelitis, once the acute stage was over he thought it was useful in hastening healing. Under the age of 17, regeneration of the bone could be relied on.

Prof. F. H. **ALBEE** (New York) confessed to having had many misgivings, but now proclaimed himself a complete convert to the Orr method. He had been making a special study of the flora of wounds. He thought it probable that the success of the Orr method would prove to be due to the development of a bacteriophage in wounds which were left for a long time undisturbed. From experiments in test-tubes it was known that a bacteriophage did take some considerable time to develop, and in wounds treated by frequent dressings there was no opportunity for this. He had hope that in the future more active bacteriophages might be cultivated outside the body, which by their introduction into wounds would help still further the process of healing.

Sir **WILLIAM WHEELER** (London) pointed out that Mr. Winnett Orr's dissatisfaction with the Thomas splint as a fixation apparatus was really a criticism of the badly applied Thomas splint, while the success of Orr's own methods was absolutely dependent on adequate application of the plaster splint. In the late war the mortality from compound fractures had diminished very markedly after the use of the Thomas splint had been introduced on the field. It had been found that, granted the limb was fixed adequately on a Thomas splint, the patients lived in spite of the absence of proper attention to the wound before removal down the line. Another lesson of the war had been that, contrary to expectation, bone grafts stood infection surprisingly well. Two great advantages of the Orr method were that the temperature settled after application of the fixation and that the patients could be transferred to their own homes in between the times for dressings.

Prof. M. G. O'MALLEY (Galway) described the fate of 36 cases of acute osteomyelitis. Twenty had been treated by the Orr method, with one death on the sixth day from septicæmia. These cases had had an average of two to three dressings each. Sixteen patients had been treated by the old method, and of these four had died. Two of these deaths were probably unavoidable by any method, but the other two who had died of prolonged sepsis might well have been saved by the Orr method of treatment. The best way of combating the smell was by thorough ventilation. He did not advocate removal of the shaft of the tibia for osteomyelitis of that bone.

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Irradiated milk he thought was probably of great value, but there was still need of further standardisation of the processes employed in manufacture. For curative treatment he also urged the use of irradiated ergosterol, but whether used for prophylaxis or cure it was of the greatest importance to employ the correct dosage. The directions given by the manufacturers should in every case be rigidly followed, and there was need of more use of the international standards and of clinical standardisation. For prophylaxis a dose of 1500 international units a day for children between one and two years of age appeared to be the best; this was equivalent to about five teaspoonfuls of good cod-liver oil. For curative purposes the dose should be in the neighbourhood of 3000 units with a maximum of 5000. This, said Dr. Harris, was approaching the toxic dose which for infants began at about 10,000 units, and he discussed the risks and clinical features of hypervitaminosis, concluding that with such a valuable remedy the danger of overdosage was no reason for forbidding its employment altogether.

Summarising available evidence on the mode of action of the vitamins, Dr. Harris remarked that while vitamins A and C were of more importance in cytological changes, vitamins B and D controlled more certain chemical processes. The antirachitic vitamin was responsible for regulating the level of the calcium and phosphorus in the blood through the medium of the rate of absorption of these substances from the intestine. It followed that it was the best means of preventing the rickets of cœliac disease and for the treatment of infantile tetany. For tetany he disapproved the use of parathormone except as an emergency remedy, since this secretion did not increase the absorption of calcium and phosphorus and even led to a net loss to the body as a whole. In conclusion he spoke briefly of the need for more investigation into the effects of extra vitamin B added to the infants' diet and of the need to give vitamin C to all infants. Adequate nutrition under existing economic conditions being impossible for certain sections of the community, it was doubly necessary for our scientific knowledge of nutrition to gain wide recognition and be applied in practice.

Dr. W. R. **Aykroyd** (Health Section, League of Nations) said that public health authorities in many European countries were awakening to the fact that public health activities must be concerned with dietetics. But there was a widespread ignorance both of details and of the broad principles of dietetics and knowledge diffused slowly; malnutrition was still associated with lack of intelligence and education. He gave examples of the effects of a diet deficient in vitamin B_2. Despite the clearest evidence as to how pellagra could be prevented the disease was on the increase in certain countries. In many areas a diet too largely composed of cereals was in use leading to sickly and under-developed children, and it was claimed that the giving of the vitamin-B complex improved the growth and nutrition of infants. The dose of vitamin C in orange juice had been standardised and vitamin A was generally present in sufficient quantity in whole milk of a good quality. The recent report on vitamins by the Medical Research Council had suggested that vitamins should be added to the diet of mother and child in all breast-feeding. In older children the deficiency diseases were more complex, but it was clear that a diet must contain adequate amounts of certain foodstuffs such as milk, butter, and eggs, and in judging the worth of a diet it was best to take these more valuable foods into consideration rather than to pay too much attention to special factors. This had the advantage of being understood by the public.

Dr. **Colman Saunders** (Dublin) said that in Dublin it was unusual to find a baby between one and two years of age not suffering from rickets. The disorder was not uncommon in the breast-fed infant and here the diet of the mother was of great importance. He thought that breast milk on an average did not contain more vitamin D that cow's milk, but the baby got more breast milk and got it undiluted so that the chance of vitamin-D deficiency was lessened. Vitamin D ought to be added to the mother's diet or even given to the breast-fed infant. In the artificially fed baby, he continued, imbalance was frequent and in adding vitamin D it must not be forgotten that the whole diet must be revised and corrected. He agreed with Dr. Harris as to the optimal dosage of vitamin D for protection and for cure; he gave egg yolk to premature babies both for its vitamin and iron content. Tetany, he thought was often present in a latent form, and accounted for the great majority of convulsions from three months of age onwards. He had found the paroxysms in whooping-cough and fits in children of school age benefited by extra vitamin D and calcium in the diet.

Dr. H. E. **Magee** (Aberdeen) drew attention to the loose use of the word "nutrition." It was important, he said, to consider the whole question of the intake and the output of essential foodstuffs as well as digestion, absorption, and metabolism. He was convinced of the great importance of balance in the diet and mentioned some experiments concerned with the optimal concentration of calcium in the bowel for the absorption of glucose. In conclusion he stressed the value of estimating the phosphatase in the blood as a delicate indication of impending nutritional breakdown.

Dr. S. W. **Clausen** (Rochester, U.S.A.) mentioned more experiments in relation to the giving of extra vitamin B in the diet of children who were hypotonic, with poor appetites, and were not gaining weight. The work had been, unfortunately, not adequately controlled and improvements obtained might have been due to an increased carbohydrate intake. With regard to vitamin-A deficiency the theory of increased susceptibility to infection was attractive but experiments were difficult, since no pure source of vitamin A had been available until recently. The study of carotene in the blood, however, had shown only slight correlation between the presence of this substance and the susceptibility to infection. Attempts were being made at present to cure xerophthalmia by carotene.

Dr. H. P. **Wright** (Montreal) thought the medical profession knew too little about vitamins and the general public too much. He mentioned some experiments made with vitamin A in relation to preventing the common cold, in which the results were negative. Recently he had been using potatoes as a source of vitamin C; ordinary mashed potatoes were effective both for the prevention and cure of scurvy. Four teaspoonfuls daily were needed to prevent and eight to cure.

Prof. L. G. **Parsons** (Birmingham) warned his hearers that the statistics presented to them dealing with the prevalence of rickets were not in agreement with clinical experience; he did not see anything like the number of cases of rickets now that he did some years ago. He stressed the value of irradiated milk; recent work by Hess showed that the vitamin D obtained in this way worked better in the tissues than that from irradiated ergosterol. He added that pellagra was not unknown in this country.

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of stomach and the proximal part of duodenum lasting about one minute, followed by blanching of serous and mucous coats with increased secretion of peptic juice. He suggested that this brain lesion is irritative, for if in atropinised animals the vagi are cut ulcers are not produced. Prolonged vagal stimulation may in this way produce gastric ulceration.

Dr. R. C. Garry (Glasgow) spoke on the control of defæcation. In view of the prevalence of constipation it is, he said, surprising how little is known about the nervous mechanism controlling the evacuation of the large bowel. There are two stages in defæcation: (1) contraction of the distal colon; (2) dilatation of the anal canal which augments contraction of the distal colon. These reflexes depend on the integrity of the pelvic nerves and the lumbosacral region of the spinal cord.

Dr. H. E. Magee (Aberdeen) said that ergotoxine and atropine suppressed hyperglycæmia in normal rabbits after administration of glucose by stomach-tube, partly owing to delayed absorption causing inhibition of gastric discharge. In amytalised rabbits, atropine, splanchnotomy, and vagotomy increased the rate of absorption of glucose and the degree of hyperglycæmia. In decerebrate rats vagotomy increased the rate of absorption, whereas atropine had this effect in non-fasted animals only and depressed absorption in fasted animals. These results were more in favour of the view that alimentary hyperglycæmia is due to overflow of absorbed glucose through the liver than of the rival theories.

Urea in Health and Disease

Dr. W. R. Fearon (Dublin) said that urea is one of the simplest and most widely distributed forms of organic nitrogen. Its functions, other than the excretion of nitrogenous waste products, are numerous. It is a diuretic, a galactogogue, a solvent, and a precursor of urinary ammonia. Urea is formed almost entirely by the hepatic deamination of surplus amino-acids. J. W. Jessop (Dublin) has shown this formation of urea to be fairly constant. After the consumption of 80–90 g. of food protein, the daily output ranges from 25–30 g. Urea, owing to its unique diffusibility, is universally and fairly uniformly distributed throughout the animal—except in adipose and renal tissue. The normal range is 15–45 mg. per 100 g. fresh material, the average blood values being 18–38 mg. per 100 c.cm. One result of this diffusibility is that urea retention does not cause œdema. Physiologically two types of hyperuræmia may exist: (1) due to increased production; (2) due to decreased removal of urea. Both types are present in many clinical conditions—e.g., increased production of urea due to high protein consumption; fever or thyroxine administration causing increased metabolism and decreased excretion of urea; as a result of acute renal incompetence, chronic renal inefficiency, toxæmias of pregnancy, acute intestinal obstruction, diabetes mellitus, destruction of renal tissue, or starvation. Abnormally low values of blood-urea have been observed in conditions due to decreased urea genesis, acute hepatic inefficiency, and increased excretion—e.g., diuresis as in diabetes insipidus and other diabetic polyurias, lipoid nephrosis, and pregnancy. Uræmia can be divided into (1) simple uræmia or "urotoxæmia" due entirely to retention of urinary waste products, and (2) uræmia complicated by extrarenal factors—e.g., vascular, hypertension, diffuse arteriolar, and arterial disease. The biochemical syndrome of a simple uræmia following total nephrectomy in man has been described by G. Thompson (1932). The term "urotoxæmia" may be defined as the pathological condition due to retention of urinary solutes in blood. In normal subjects, blood-urea may be temporarily raised with transient symptoms of urotoxæmia; this experimental hyperuræmia is profoundly different from that produced by abnormal retention. It is possible that in sustained and increasing hyperuræmia the urea acts as a narcotic.

Prof. Joseph Barcroft (Cambridge) said that the constancy of composition of blood qua pH, oxygen, and water was well known but not understood. Perfused organs would function within wide ranges of these factors. Variations in them seem to affect the mental rather than the bodily functions. Possibly urea acts in the same way.

Dr. Geoffrey Thompson (Dublin) remarked that cerebral convulsions normally associated with uræmia may be due to spasm of the cerebral vessels or œdema, and are usually relieved by lumbar puncture. The term urotoxæmia was, he thought, preferable to uræmia to indicate the retention of urinary solutes in the blood.

Prof. J. S. Dunn (Glasgow) said that in experimental nephritis blood-urea could be raised to 600–700 mg. per 100 c.cm. with no permanent effect. If sufficient water is given urea has no effect per se; without water, dehydration and uræmia follow without any further rise in urea.

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Food and Goitre

Sir Robert McCarrison (Coonoor, India), in a paper illustrated with lantern slides, said that the thyroid is not an organ whose size is unalterably fixed but one designed to adapt itself to environmental conditions; with variations in size there are also variations in histological appearance, the latter varying with the phases of the gland's activity. The factors influencing the size of the gland are multiple and include hereditary influences, individual idiosyncrasy, age, sex, sexual activity, psychical factors, season, locality, altitude, distance from sea, sanitary conditions, and diet. Of these diet is the most important. The thyroid has a profound influence on the metabolism of food. Hyperthyroidism increases nitrogen metabolism, mobilises hepatic glycogen, and inhibits the anabolism of fat. It appears to have a direct stimulating katabolic effect on the calcium deposit of bone and it controls the utilisation of iodine in the body. Conversely no organ is more sensitive to food conditions. Excess work may cause hypertrophy and subsequent strain fibrosis, or because of improper food the physiological efficiency of the gland may become impaired. The more perfect the constitution of the diet the more normal and less variable the size of the gland. Further the diet must be balanced. The chief excesses in ordinary diets are fats, lime, iodine, and certain unidentified substances in vegetable foodstuffs. An excess of fats or calcium favours goitre production, an effect neutralised by additional provision of iodine. Certain unidentified substances in some vegetables (probably cyanides) depress cell oxidation and are goitrogenic. Although not due to an iodine deficiency the goitres can be prevented by iodine, thyroxine, and manganese chloride, and to a less extent by thymol. Experimental goitre can also be produced by diets deficient in vitamins A and C. The antigoitrogenic value of foodstuffs, such as milk, oatmeal, green vegetables, and carrots, does not depend on their iodine content. Deficiency of oxygen, caused by constriction of the trachea or obstruction in the upper air-passages, was associated with an accumulation of colloid in the

Dr. **Catherine Chisholm** (Manchester) dealt with the value of heliotherapy which even in a town like Manchester was of proved value in preventing rickets. She thought "good mothering" a most important aspect of the prevention of rickets; it was easier for the mother to give cod-liver oil than to measure out small doses of irradiated ergosterol.

The **Chairman** thought that abolition of smoke over big cities would go a long way to abolish rickets. Since man was an "irradiated animal" in his natural state there was much to be gained by a return to this state as regards clothing and housing.

Dr. **Edouard Ceresole** (Lausanne) read a paper on childhood, common sense, and medicine. He pointed out that while the breeding of animals had reached a high scientific level, little interest was shown in the hygienic aspects of breeding in the human species. He thought pædiatricians still showed too much leaning towards the diseased state rather than towards preventive medicine. Even in his own country they were behind in matters of general hygiene; fresh air, for instance, was still too often shut out of institutions. In England the contrast between the fine physique of the public school boy and that of the child from the poorer districts showed strikingly the effect of environment. It was more logical to order sunshine than vitamins, and he stressed the value of sleeping out of doors all the year round.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY

At the meeting of this section, Prof. T. H. **Milroy** (Belfast), the president, being in the chair, a discussion on the

Nervous Control of Abdominal Viscera

was opened by Prof. D. T. **Barry** (Cork), who dealt with the rôle of the parasympathetic and sympathetic systems in the regulation of muscular movements and of vascular conditions in the abdominal viscera. The method adopted for experimental investigation was described in the *British Medical Journal*, 1933, i., 956. In the dog cardioinhibitor fibres may be found arising at a low thoracic level; in man all cardiac branches are said to rise above the root of the lungs. Prof. Barry has twice unwittingly stimulated these fibres below the root of the lung in the dog, once with a fatal result. When either vagus nerve is excited by a fairly strong current a balloon in most parts of the small intestine shows some degree of external pressure upon it. Stimulation of one or both nerves gives rise to the contraction in varying degrees. The antagonistic action of the splanchnic tone and vagal muscular impulses is demonstrated by tambour readings before and after splanchnic section. Atropine annulled vagal contraction experimentally both before and after splanchnic section, but it is increased by acetylcholine or pilocarpine injections, showing that the fibres concerned are of true parasympathetic nature. Measured electrical stimulation demonstrates the gastric vagal chronaxia to be diminished by splanchnic section. Stimulation of the great splanchnic nerve produces, as has been generally recognised, inhibition of the gut, but also excitatory actions, both rhythmic and tonic or peristaltic in type. In a given reaction from excitation of one branch of the double system of nerve-supply, certain elements received by communication from the other branch may be responsible for the result. What is the type of the vagal fibres supplying the stomach? Intracranial vagal stimulation is reported to have given gastric motor responses. While there is evidence to show that the motor fibres to the stomach are parasympathetic, it is probable that the sympathetic fibres convey inhibitory impulses. More work has to be done to make clear the mixing of elements in the two systems. The hyper-hypotensive reaction is characteristic of fairly strong stimuli to both peripheral vagi; atropine does not annul the reaction. This vascular response was not intensified by vagotropic substances but was definitely annulled by injection of sympathetic paralysants. After section of the splanchnic nerves the vascular reaction to vagal excitation disappears or is modified considerably. The conclusion from experiments was that there are both hyper- and hypo-tensive fibres in the vagus nerve.

An interesting feature of vagal activity is the alteration in renal volume, excitation of vagus giving increase in some cases and marked decrease in others. Atropine had little or no effect on the renal constrictor response to vagal excitation. Acetylcholine, however, given in small doses caused first a hypotensive effect, which was accompanied by immediate renal shrinkage, followed by a phase of enlargement, and then again shrinkage. After atropine, however, the immediate effect of acetylcholine was markedly hypertensive. The disappearance of vagal hypotension after splanchnic section might suggest that vagal depressor fibres pass into the splanchnic system. The influence of the vagus in causing hypotension may be due to the counteraction of splanchnic vascular tone; but after splanchnic section, the vagal hypotensive reaction shows a tendency to recover. Different views upon the subject of sympathetic fibres in the gastric vagus may be partly explained by methods of investigation, physiological and pharmacological observations giving different results from histological and anatomical study.

Prof. B. A. **McSwiney** (Leeds) said that both vagus nerves mix in a plexus on the œsophagus; the innervation of structures in the abdomen therefore cannot be differentiated. Further, the spinal parasympathetic fibres supply the motor fibres to stomach and intestine through the greater splanchnics. On stimulation of the thoracic sympathetic trunk or splanchnics, contraction or relaxation of the stomach was obtained according to type of stimulus used (tetanising or one stimulus per sec.). Working on isolated nerve muscle preparations, results obtained point to liberation of a chemical substance (acetylcholine) at the periphery. While therefore it may be right anatomically to speak of two divisions of the autonomic nervous system, yet fibres in the sympathetic nerves may, in action and liberation of chemical substance, resemble fibres of parasympathetic and vice versa. The stomach is a good example, for contraction and relaxation may be obtained by stimulating nerves of either system.

Prof. J. R. **Learmonth** (Aberdeen) limited his remarks to nervous control of bladder and terminal colon in man. Defect of neuromuscular coördination leads to mega-bladder, mega-ureter, and mega-colon. Records were given of results of removing the presacral nerve in six cases with this syndrome. Three cases were completely relieved, one required division of internal sphincter of bladder, and two were unsuccessful probably owing to severe bladder infection.

Prof. **John Beattie** (Montreal) said that lesions of the anterior hypothalamus have been shown to result in peptic ulcers. Stimulation of the tuber cinereum caused transient vasodilatation of the pyloric segment with numerous photographs of gross and microscopic specimens, is full of the author's personal observations and is thus more readable than the average text-book. The personal factor, however, has its drawbacks, and it would appear that the matters which are of chief interest to the author have been expanded to the detriment of other important subjects which receive rather scanty treatment. For example, the space devoted to the changes in epilepsy, none of which are unequivocal, is twice as great as that given to hydrocephalus, concerning the production of which a good deal has been learnt within recent years. Syringomyelia, again, is dismissed very shortly without reference to its association with intramedullary tumours of the cord: an association that is common and possibly highly significant. A very hazy impression remains after reading the paragraph on blood-vessel tumours of the brain. On the other hand such subjects as these are for the most part fully treated in monographs which can be consulted at need.

One of the chief merits of this book is that it gives information upon a number of subjects that have not been written up in an easily accessible form, such as the functional psychoses, Pick's disease, fungus and parasitic infections, and so on. The section on post-mortem changes and artefacts is good and is appropriate in a book of this kind. It should enjoy a considerable popularity among those interested in neuropathology.

Urologie infantile

Par les Drs. BEER et HYMAN. Traduit de l'Américain by le Dr. FRITZ BUSSER. Paris: Gauthier-Villars. 1933. Pp. 262. Fr.40.

THE appearance of a French edition of Beer and Hyman's excellent monograph is a reminder of the highly specialised nature of the urology of childhood, which calls for the association of urologist and pædiatrician. The authors are well qualified to write from their extensive experience at the Mount Sinai Hospital, New York, and as their book is one of the few devoted exclusively to this subject, it is appropriate that it should be made available to a wider audience. The technique and limitations of the various methods of investigation are discussed in considerable detail and illustrated by a number of excellent radiographs. It is perhaps a pity that opportunity was not taken in the present edition (which is translated from the American edition reviewed in THE LANCET two years ago) to include some reference to the use of ketogenic diet in pyuria in childhood, and the absence of an index is also regrettable. In other respects the book is thorough and well documented, and provides a useful review of the subject.

Cardiovascular Pain as a Biochemical Problem

By GORDON LAMBERT, B.A., M.D., B.C. Cantab., Senior Hon. Physician and Physician in charge of Electrocardiographic Department, Royal Berkshire Hospital; Cardiologist to the Ministry of Pensions, Reading Area. London: H. K. Lewis and Co., Ltd. 1933. Pp. 75. 6s.

IN view of the title of this book it is surprising that the biochemical aspect of cardiovascular pain is not touched on till we are completing the first part. The rôle of infectious disease in cardiac and arterial degeneration is considered in a rather sketchy fashion, and direct reference to the biochemical problem is not made till the views of Starling and Mackwalder on the dilatation of the coronary arteries by non-volatile metabolites of the heart muscle itself are set out. The main subject of the book is then ignored till mention is made of "vagus substance," which is considered to be liberated in the heart by the vagus nerve and is probably an acetyl derivative of choline. Finally in the concluding section a few more very brief references are made to biochemistry, mostly in quotations from various authorities. If this book is intended to be a serious contribution to the problem of a biochemical cause of angina pectoris, it cannot be said to succeed; if, however, it is merely intended to arouse interest in this aspect of the problem without offering considered theories, it fulfils its object, in spite of a rather rambling style, due to profuse quotation, interspersed with illustrative cases and diagrams. As an introduction to the problems involved it has the merit of opening up many sides of a complicated subject.

The Chemistry and Physics of Contraceptives

By CECIL I. B. VOGE, B.Sc., Ph.D., F.R.S.E. London: Jonathan Cape. 1933. Pp. 288. 12s. 6d.

THIS volume contains a valuable and painstaking summary of the constituents of the many proprietary spermicidal preparations with which the market in this country has recently been flooded. Dr. Voge also gives particulars of laboratory tests which may provide a rough index of the clinical reliability of the preparations. His book will prove helpful to research workers rather than to clinicians, since there emerge from the mass of details which it contains few practical conclusions, except that of the many spermicidal preparations now available the foam jellies satisfy most of the author's theoretical requirements. There is no means of forming a valid judgment on the newer of these preparations by reason of the lack of clinical evidence to substantiate the often extravagant claims made for them. Dr. Voge's discussion of the manufacture and marketing of the rubber condom or sheath will be of interest to those advising the use of these articles.

The book is profusely illustrated, and contains numerous tables which are not always easy to follow; and the reader is apt to lose his way in the references to and quotations from other workers, which, as often as not, produce the effect of confusing rather than of clarifying the essential argument.

Roman Catholic Methods of Birth Control

By MARIE CARMICHAEL STOPES, D.Sc., Ph.D. London: Peter Davies. 1933. Pp. 235. 6s.

IT is here argued that the means of regulating conception permitted by the Roman Catholic Church can, according to the most acceptable definition of the phrase, be described as falling within the category of "birth control methods." Contraception or birth control is defined as "the use by either sex of any means whatsoever whereby coitus may be experienced, while at the same time the fusion of the ovum with the spermatozoon may be averted so that conception does not take place." This definition clearly excludes abstinence from the category of birth control methods. But it does not exclude the use of the so-called safe period which is allowed by Roman Catholic moral theologians and which, by implication, is sanctioned by the papal encyclical of 1930. Nor does it exclude coitus reservatus or karezza which must clearly be distinguished from coitus interruptus. The latter involves coitus, withdrawal, and seminal emission, vesicles of the thyroid. Deficiency of vitamins A, B, and C were known to affect the thyroid unfavourably and there was some evidence that vitamin D may not be without effect. There is, Prof. McCarrison concluded, no incontrovertible evidence that iodine deficiency is by itself the cause of goitre; nevertheless a low iodine intake may, in certain conditions of diet and hygiene, predispose to occurrence of goitre and be a determining cause of its endemicity. He gave figures showing interaction between faulty food and insanitary conditions in the causation of goitre. Rats fed on a perfectly constituted diet never developed goitre living under conditions of gross insanitation; fed on an ill-constituted diet 47 per cent. became goitrous. Of rats on a deficient diet and distilled water 39 per cent. became goitrous, whereas on the same diet and polluted drinking water the percentage of goitre was as high as 89.

REVIEWS AND NOTICES OF BOOKS

Mental Deficiency

Stoke Park Monographs on Mental Deficiency and other Problems of the Human Brain and Mind. No. 1: The Burden Memorial Volume. Edited by RICHARD J. A. BERRY, M.A., F.R.C.S., F.R.S.E., Director of Medical Services. London: Macmillan and Co., Ltd. 1933. Pp. 249. 10*s.* 6*d.*

THE group of institutions comprising the Stoke Park Colony bears the honour of being the first of its kind to be certified under the Mental Deficiency Act of 1913, and this volume is fittingly opened with a tribute to the Rev. H. N. Burden for his initiative as founder and for his encouragement, financially and otherwise, of research, a work still liberally continued by his widow. For eleven out of the seventeen contributions Dr. Berry is responsible, either in whole or in part. Some of these were written while he still held a chair of Anatomy in Australia, and it is natural that the book should be dominated by an interest in the modifications of cerebral structure associated with mental defect rather than its psychological aspects, although these are not neglected. Dr. Berry quite frankly confesses that "the study of cerebral insufficiency is more fascinating than the legally restricted one of mental deficiency." Measurements of brain capacity, general physical data, height, weight, and sitting height, and psycho-physical measures of grip and vital capacity figure largely in the system of diagnosis employed at Stoke Park. Dr. Berry appears in one passage to agree with the opinion of most diagnosticians that head measurements are "only ancillary," but in another he hails the same measurements as "a distinct advance in scientific diagnosis."

Such inconsistencies and a tendency to generalisations of doubtful validity are not uncommon in the book. One may agree that normal postnatal brain development depends on the growth of the supragranular layer, while hesitating to accept the statement that in a premature arrest of its development "lies the physical basis of the majority of cases of pauperism, vice, crime and other forms of social inefficiency." That Dr. Berry is himself doubtful appears only a few pages later when he says "here is the physical basis of at least a percentage of pauperism, vice and crime" —obviously a much more guarded statement. It is also not clear what is the evidence for the assertion that at least 2 per cent. of school-children are defective, unless it be that the author is still influenced by the Australian freedom from a legal definition of mental defect.

The note by Dr. R. G. Gordon and Dr. R. M. Norman on some psychological experiments on defectives on the lines of Köhler's work on chimpanzees is of particular interest, as is also Dr. Norman's contribution on neurological abnormalities in the defective, and that of Dr. R. M. Bates on some curious developmental deformities in individual cases. The chapter on heredity by Dr. Berry adds nothing to existing knowledge, but his dictum that "it is the non-certified parents rather than their segregated and defective offspring whose sex instincts require some form of public control" may be commended to the consideration of ardent advocates of sterilisation of mental defectives.

The sections on brain structure, both normal and abnormal, are lucidly written and adequately illustrated, some photographs being included of original models by Dr. Berry from the laboratory at Stoke Park. The illustrations throughout the book are excellent, but it may be questioned whether the chapter of pictorial records of defectives serves any material purpose. While the authority of Dr. Berry and his colleagues cannot be questioned in matters anatomical and neurological, his philosophy might not find so ready an acceptance, and when he asserts that "it cannot be long before the brain gives up the last of its secrets—the fashioning of mind out of the functions of neurones and their synapses," there will be some at least who will ask if mind is thus fashioned. The interest of the book is, however, primarily anatomical and neurological, and as such it occupies a place of its own in the literature in English on mental defect and merits careful study.

Neuropathology

The Anatomical Foundation of Nervous Diseases. By WALTER FREEMAN, M.D., Ph.D., D.N.B., F.A.C.P., Professor of Neurology, George Washington University; Director of Laboratories, St. Elizabeth's Hospital, Washington, D.C. London: W. B. Saunders Co., Ltd. 1933. Pp. 349. 20*s.*

MANY advanced works have been published in recent years dealing with special aspects of neuropathology, particularly with its cytology. Very little has been available for the student who wishes to acquire easily a bird's-eye view of the subject. Prof. Freeman was happily inspired therefore in his attempt to supply this need and may be congratulated on his success in presenting the results in a volume of very reasonable size and attractive form. His desire to bring the pathology of the central nervous system into line with that of the rest of the body will meet with sympathy from the general pathologist. In the past the neurological pathologist has tended to magnify the differences between the central nervous system and other tissues, which we have heard referred to in neurological circles somewhat contemptuously as the "trunk tissues!" These differences have been accentuated in part by the necessity of using peculiar histological techniques and also by the neuropathologist's elaboration of an ultra-pedantic vocabulary. Prof. Freeman wisely appends a glossary to his work, so that the student will be able to translate these into terms of ordinary pathological experience.

The survey given of the pathology of the central nervous system is comprehensive and for the most part succinct. The text, which is admirably illustrated

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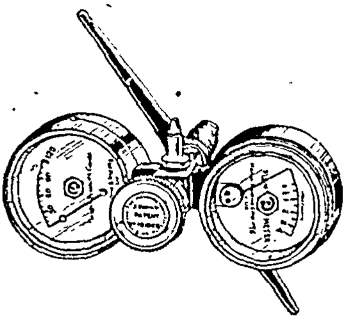
described theologically as pollution. This is the sin of Onan, and is condemned by the Roman Church. Coitus reservatus differs from the above in that no emission should take place, and Dr. Stopes gives reasons for supposing that, though not referred to directly or indirectly in the encyclical, it is not regarded by the Catholic Church as sinful. The sinfulness apparently resides in the intention of the male partner to have an ejaculation. Thus Father Thomas Slater is quoted as stating, in a book which carries the imprimatur of Rome, that if the act of coitus reservatus is attempted, the intention being that no ejaculation should occur, and if the strength of the man should fail in such a way that an emission resulted, then the man is blameless, and there is no sin. The psychological distinction between an innocent act and a mortal sin is therefore a delicate one, and Dr. Stopes alleges that in this matter the doctrines of Rome are balanced on a knife edge. This argument is forcibly presented in the first part of the book.

In the second part are described the methods employed by Roman Catholic moral propagandists to defeat the birth control movement. Figures are further submitted which show that, relatively, Roman Catholics are very prolific, and that a disproportionately large number of them become, in certain parts of England and Scotland, dependent on public assistance and, in other parts of the world, criminals. Dr. Stopes therefore argues that, in view of the claims made in this country by Roman Catholics for maintenance by the majority of persons who do not share their religion, they should not oppose the creation for these of birth control facilities of which they need not, but in the general interests might profitably, avail themselves.

NEW INVENTIONS

A NEW FLOW METER

Feeling the need for a flow meter on oxygen valves to indicate the quantity of gas which is being allowed to flow, I have designed the fine adjustment valve, here illustrated, with flow meter combined in one piece. It has been tried out during the past year, and has proved very useful, especially for anæsthesia. It incorporates my fine adjustment regulating valve, and the absence of joints and unions obviates leaks.

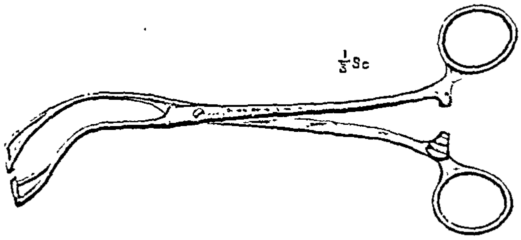


The meter is made by the Manchester Machine and Instrument Manufacturing Co. Ltd., of 2, Booth-street, Manchester.

K. B. Pinson, M.B., Ch.B. Birm.

TONSIL-HOLDING FORCEPS

The forceps shown in the illustration is a modification of Duval's peritoneum pattern. The blades are curved to almost a right-angle with the handle, so that when the tonsil is grasped there is ample room for the use of scissors or other instruments to carry out the enucleation. It has some advantages inasmuch as the tonsil is held firmly and may be drawn well out of the tonsillar fossa. No damage is inflicted on the tonsil and the view of the operation field is not restricted. The instrument is extremely light and in practice works well. A smaller size should be used for children.



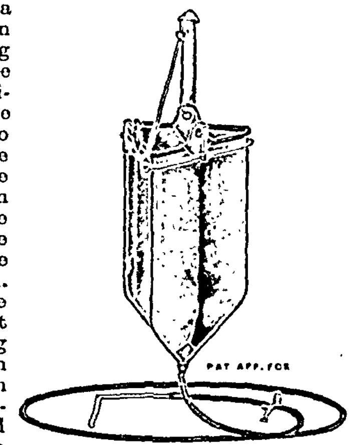
Messrs. Down Bros., St. Thomas's-street, London, S.E., have carried out my suggestions in making this instrument.

T. H. R. McKiernan, M.B., B.Ch.

A PORTABLE IRRIGATOR

Intestinal lavage has for the past few years been recognised by urologists, general surgeons, and physicians as valuable for many purposes. As a preliminary to X ray examination of the kidney it is the only certain means of excluding gas from the radiograms—a matter of considerable importance in pyelography. In the treatment of diseases of the urinary system it is of great use in pyelitis and cystitis, and for expulsion of small urinary calculi because of the profuse diuresis it induces.

The apparatus here figured, which is made of rubber, can be used on a lavatory seat with a ring cushion. If required for a bed patient, a special rubber bed-pan can be used. In using the apparatus the tube should first be lubricated with vaseline and passed gently into the rectum. The patient sits upon the cushion with one arm of the tube in the rectum and the other between the buttock and cushion. Thus a firm pressure is exerted to prevent the tube from being pushed out. When the bag is filled with fluid at body temperature and is suspended two or three feet above the pelvis, the fluid is allowed to flow slowly into the rectum by the regulating clip. The desire to evacuate should be produced by the flow of one pint of fluid in the first instance and a half pint thereafter. As soon as the slightest discomfort is felt from distension, the flow should be stopped. It will generally be found that the bowel will evacuate about ten times to the gallon of fluid, equivalent to about ten days' evacuations. With appropriate nozzles the apparatus can be used by the surgeon for intra-uterine washouts, and for vaginal or bladder washouts.



The apparatus is made to my design by the Surgical Manufacturing Co. Ltd., of 83/85, Mortimer-street, W.1.

Morton Whitby, M.R.C.S. Eng.
Genito-urinary Department, West London Hospital.

THE LANCET

LONDON: SATURDAY, AUGUST 12, 1933

THE HOSPITAL DIETITIAN

THE scope of the hospital dietitian and the training required to fit her for her duties are questions which are now engaging the attention of authorities of municipal as well as of voluntary hospitals. At a recent meeting the central public health committee of the London County Council reported to the Council the results of an inquiry into the usual conditions of training for a type of office not long established in this country, though common in American hospitals. The outcome is a recommendation for the training in dietetics, as an experiment, of six State-registered nurses chosen from among those already employed at the Council's hospitals. It is proposed that the selected candidates should take advantage of a special diploma course to be inaugurated at King's College of Household and Social Science in October next; the course is for one year only, the first half being spent at the college and the second half in the main kitchen (one and a half months) and special dietetic kitchen (four and a half months) of a hospital. The fee for the course is £30, to be paid by the Council for their six selected candidates, who will undertake to work in their service for three years after obtaining the diploma. The permission to reside in the hospitals to which they are at present attached for the first part of the course, and the allowance of full pay during training, will enable the nurses to take advantage of the opportunity without substantial outlay; presumably they will be given board and lodging at the hospital which receives them for the second part, since they will give service under supervision while studying the administrative work and practising the calculation and preparation of special diets.

It is noteworthy that this brief course of training is expected to produce a dietitian fit to undertake responsibilities far greater than those entrusted by most of the voluntary hospitals to the head of the department. The scope of such departments in this country is generally limited to the management and organisation of a special diet kitchen; the calculation of special diets ordered, and their preparation and service, in coöperation with the ward sister; the instruction of certain patients leaving hospital and of out-patients—for example, those with diabetes and anæmia; and the teaching of nurses in the theory and practice of dietetics. The duties of the officer in charge do not yet as a rule extend to the main hospital kitchen, to the purchase of food, or to the planning of menus for patients or nursing staff. It must surely be only a matter of time before the services of an expert are enlisted in large resident institutions not only to superintend laboratory-prepared and experimental diets, but also to take charge of the whole of the food-supply; for it is not the quality of the foodstuffs purchased but the lack of imagination in their choice, and of attention to variety, cooking, and service that is the subject of legitimate complaint in most institutions. The London County Council show wisdom in proposing that "thoroughly responsible and well-qualified officers" shall undertake the general organisation of the feeding arrangements in hospitals, as well as the provision of special diets for special patients, and we are in cordial agreement with this wide view of their responsibilities. It seems exceedingly doubtful, however, whether a short course of training will fit even a nurse of quite unusual abilities for such complex duties. The supply of eligible candidates will not, we imagine, be great, for we understand that admission to this special diploma course is limited to those State-registered nurses who can satisfy the authorities that they have spent at least two years in studying science at courses of a university standard. It seems likely that better results would be obtained by insisting, as do two at least of the voluntary hospitals — St. Bartholomew's and University College Hospitals—on the possession of high qualifications, notably a science degree as well as special experience, in their dietitians who, by the way, are not trained nurses. Doubtless, other things being equal, a trained nurse would have preference in such appointments, if only on grounds of enlarging the scope of the work available to a nurse after registration. But the real essential is a thorough training in domestic economics and the chemistry of foodstuffs, as well as in the science of nutrition and its intelligent application. The latter depends not only on knowledge of the basic sciences, but on a cultural background which cannot hastily be acquired. It would be most unfortunate if the organisation of a much needed hospital department were to fail because the persons chosen to inaugurate it had not the equipment and status required to carry through necessary changes. It is to be hoped at least that the shortened course at King's College will not attract students to the disadvantage of their admirably planned degree course, and that the standards of previous education required in candidates admitted to it will be maintained at a high level.

INDUSTRIAL PULMONARY DISEASE

IN a highly industrialised country such as Great Britain, dealing with an enormous variety of raw materials and employing perhaps an equal number of manufacturing processes, there is little need to emphasise the importance of the study of occupational disease. Certainly it has not been overlooked by the compilers and interpreters of our national statistics, for the valuable series of studies of occupational mortality, issued at ten-yearly intervals by the Registrar-General, was initiated by FARR as long ago as the middle of the last century. On the other hand, workers in this particular field of hygiene will be the first to admit that the detection of the industrial risk, its isolation from other environmental and, possibly,

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See also pp. 22 & 23

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heritable factors, and the measurement of the ill-health for which it is specifically responsible, are amongst the thornier problems of vital statistics. Where the disease, like anthrax or specific chemical poisoning, rarely occurs amongst the population at large, there is usually little difficulty in fixing the occupational origin and in taking steps to reduce the risk. But where the disease is one which frequently attacks the general population difficulties begin to bristle. The mere appearance of the disease is then obviously no indication of an occupational origin; it must be shown that a group of workers has an abnormally high incidence from it and, further, that their mode of life is differentiated from an otherwise comparable sample of the general population only in the occupation that they follow.

Nowhere are these difficulties more apparent than in the study of pulmonary diseases, the incidence of which may fall with unequal severity upon industrial groups but whose clinical aspect mostly does not differ from the normal. Examples may be found in the reports of the Industrial Health Research Board on the incidence of phthisis amongst printers,[1] and of "bronchitis and asthma" amongst cardroom operatives in the Lancashire cotton-spinning mills.[2] Exactly why printers should die from tuberculosis at a relatively high rate has often been the subject of speculation but has never been solved—though many explanations have been put forward. To mention but one incriminated factor, does the night and high-speed work of newspaper production contribute to a breakdown in health? Here the obstacles to investigation are perhaps insuperable. The interchangeability of workers between newspaper offices and general printing leaves the observer with no clearly defined groups to study, for inevitably he has to accept the industrial organisation as it stands and cannot adjust, like the laboratory worker, his material to suit his ends. Though it has been said that tuberculosis in printers runs a peculiarly rapid course, there is really no evidence that in symptoms and development it differs from the normal case. Cardroom workers' "asthma" is another example of an industrial pulmonary disease which in its clinical course is not clearly distinguishable from the bronchitis, emphysema, and their concomitants observed by every practitioner. Only a large scale inquiry into sickness incidence could reveal that past conditions in the cotton mills have led to its being the cause of the disablement, permanent or temporary, of an excessive number of operatives engaged in the dustier processes of the mill. Whether the much improved modern conditions of work have removed this risk is a moot point which only time can solve. With constantly changing conditions of manufacture, and often a very slow development of disability, this is a further difficulty of investigation which is likely to be frequently encountered, and, as in this particular case, limits the final conclusions regarding the industrial risk.

A dust hazard that has for some years been agitating the anthracite section of the Miners' Federation, and has been the subject of repeated questions in the House of Commons,[3] is that involved in anthracite mining. Does anthracite dust inhaled in varying quantities over a working life have a damaging effect upon health? This is a problem which has, at the request of the Mines Department, been closely considered by the Medical Research Council's Committee on Industrial Pulmonary Disease.[4] The difficulty is to obtain a sufficient number of surface workers for medical examination, who have been exposed to anthracite dust *only*. The examination of underground workers, engaged in hewing the coal and conveying it to the surface, can unfortunately contribute nothing towards a solution, for these workers are not exposed only to anthracite dust but also to the stone dust produced in boring through rock and in roof "ripping." The development of a pneumoconiosis amongst these workers is therefore not necessarily the result of the inhalation of anthracite dust per se but may indicate a silica risk. This point is emphasised in a recent study of the "health of old and retired coal-miners in South Wales"[5] made (with financial assistance from the Medical Research Council) by Dr. ENID WILLIAMS, Cecil Prosser Research Scholar in Tuberculosis in the University of Wales, 1930–31. She points out that a man who has worked his whole life on the "screens" (where the coal is mechanically sorted on the surface into various grades) is the only colliery worker who has been exposed to coal dust alone. But such a man is rare, for a screener draws smaller wages than any of the skilled workers underground, and young and vigorous men do not seek the work. In fact, the screens are largely the resort of men who consider themselves unfit for work underground, or who having worked underground as hewers have failed on account of ill-health. "They are often men who are dyspnœic and have other signs of chest disease. They have asked for 'a job on top,' and have been put to work on the screens." Examination of such a selected group of operatives is not likely to lead to illuminating results. An alternative, and perhaps more hopeful line of approach, is being sought by the Medical Research Council's committees in information from "coal trimmers" occupied in loading coal at the docks.[6] These workers are exposed to various concentrations of coal dust in the hold of the ship, and with the complication of stone dust thus removed, may lead to a more decisive answer to the problem. In his study of the silica contents of lungs, published in our columns recently,[7] Dr. A. F. SLADDEN included four of these workers, and was led to the conclusion that coal dust alone, apart from silica, cannot be regarded as a cause of serious fibrosis of lungs. The result of more extensive investigation amongst the living will be awaited with interest; the problem is important, though, as Sir GEORGE NEWMAN points out

in his annual report for 1931, it does not follow that its immediate statistical study is a practical operation.

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[1] Report No. 54. H.M. Stationery Office. 1929.

[2] Report No. 59. H.M. Stationery Office. 1930.

[3] THE LANCET, 1932, i., 430 and 1289; 1933, i., 1101.

[4] Report of the Medical Research Council, 1930–31, p. 123.

[5] University of Wales Press Board, 1933, pp. 108, 6s.

[6] Report of the Medical Research Council, 1931–32, p. 117.

[7] THE LANCET, July 15th, p. 123.

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heritable factors, and the measurement of the ill-health for which it is specifically responsible, are amongst the thornier problems of vital statistics. Where the disease, like anthrax or specific chemical poisoning, rarely occurs amongst the population at large, there is usually little difficulty in fixing the occupational origin and in taking steps to reduce the risk. But where the disease is one which frequently attacks the general population difficulties begin to bristle. The mere appearance of the disease is then obviously no indication of an occupational origin; it must be shown that a group of workers has an abnormally high incidence from it and, further, that their mode of life is differentiated from an otherwise comparable sample of the general population only in the occupation that they follow.

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A dust hazard that has for some years been agitating the anthracite section of the Miners' Federation, and has been the subject of repeated questions in the House of Commons,[3] is that involved in anthracite mining. Does anthracite dust inhaled in varying quantities over a working life have a damaging effect upon health? This is a problem which has, at the request of the Mines Department, been closely considered by the Medical Research Council's Committee on Industrial Pulmonary Disease.[4] The difficulty is to obtain a sufficient number of surface workers for medical examination, who have been exposed to anthracite dust *only*. The examination of underground workers, engaged in hewing the coal and conveying it to the surface, can unfortunately contribute nothing towards a solution, for these workers are not exposed only to anthracite dust but also to the stone dust produced in boring through rock and in roof "ripping." The development of a pneumoconiosis amongst these workers is therefore not necessarily the result of the inhalation of anthracite dust per se but may indicate a silica risk. This point is emphasised in a recent study of the "health of old and retired coal-miners in South Wales"[5] made (with financial assistance from the Medical Research Council) by Dr. ENID WILLIAMS, Cecil Prosser Research Scholar in Tuberculosis in the University of Wales, 1930–31. She points out that a man who has worked his whole life on the "screens" (where the coal is mechanically sorted on the surface into various grades) is the only colliery worker who has been exposed to coal dust alone. But such a man is rare, for a screener draws smaller wages than any of the skilled workers underground, and young and vigorous men do not seek the work. In fact, the screens are largely the resort of men who consider themselves unfit for work underground, or who having worked underground as hewers have failed on account of ill-health. "They are often men who are dyspnœic and have other signs of chest disease. They have asked for 'a job on top,' and have been put to work on the screens." Examination of such a selected group of operatives is not likely to lead to illuminating results. An alternative, and perhaps more hopeful line of approach, is being sought by the Medical Research Council's committees in information from "coal trimmers" occupied in loading coal at the docks.[6] These workers are exposed to various concentrations of coal dust in the hold of the ship, and with the complication of stone dust thus removed, may lead to a more decisive answer to the problem. In his study of the silica contents of lungs, published in our columns recently,[7] Dr. A. F. SLADDEN included four of these workers, and was led to the conclusion that coal dust alone, apart from silica, cannot be regarded as a cause of serious fibrosis of lungs. The result of more extensive investigation amongst the living will be awaited with interest; the problem is important, though, as Sir GEORGE NEWMAN points out

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[1] Report No. 54. H.M. Stationery Office. 1929.
[2] Report No. 59. H.M. Stationery Office. 1930.
[3] THE LANCET, 1932, i., 430 and 1289; 1933, i., 1101.
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into the surrounding tissues is diluted with serum or by injection of local anæsthetic. It is claimed that if 5 cm. of the nerve is treated in this way, and if *absolute* alcohol is employed, a paralysis of at least one year's duration may be confidently anticipated. Such a period might well suffice for the healing of a basal cavity or even of an area of disease remote from the base, and at the end of it, or a little later, the slow regaining of function by the diaphragm would prove beneficial rather than harmful.

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[1] Rev. de la Tuberc., June 1933, p. 594.

Cordey and Philardeau do not refer to the difficulties encountered when an accessory phrenic assists in the innervation of the diaphragm. It was because of the frequency of this additional nerve-supply that the operation of phrenic evulsion was designed—an operation that has replaced the simple division of the nerve which often failed to achieve its object. Presumably the most careful nerve blockage would fail unless accessory branches were also dealt with, and a further operation would then be required. In this connexion it is important to note that phrenic evulsion following an alcohol injection may prove very difficult, for the tissues surrounding the nerve are apt to become thickened and opaque as the result of the previous treatment. The injection of a few drops of Chinese ink at the time of the original operation has been proposed as a means whereby the track of the nerve might be followed if further interference should be required.

FLUORINE AND FLUOROSIS

Within the last ten years the serious nature of chronic fluorine poisoning has been recognised, and in reviewing the subject Dr. Floyd DeEds[1] is able to bring out several important facts connected with agriculture and food production which affect the public health. He states that a daily intake of 0·1 to 0·15 mg. of fluorine per kg. of body-weight is capable of producing at least one important manifestation of chronic poisoning—namely, mottled teeth, which occurs endemically in large areas of America, Africa, Asia, and Southern Europe.[2] "Therefore," he says, "the use of fluorine compounds, or of mixtures containing fluorine derivatives, as insecticides or fumigants in conjugation with plants or foods, should be limited to conditions where satisfactory removal of fluorine residues can be carried out before placing the food on the market." He suggests that chemical analyses for fluorine content should be made on a wide variety of foods and food products grown and prepared under conditions in which the fluorine content is acquired solely through natural processes, and on the basis of such analyses a tolerance limit for added fluorine should be specified. All will agree that further investigation of the physiological effects of fluorine, especially under conditions of continued administration or intake, is desirable.

Meanwhile V. Gudjonsson has discovered a new hazard of modern industry—fluorosis of the bones and ligaments. Working with Prof. P. Flemming Moller in the occupational hygiene bureau of the Labour Inspectorate in Copenhagen, he was at first concerned with the incidence of silicosis among workers in dusty trades, and studied the conditions under which, near Copenhagen, cryolite is crushed and refined for use in the manufacture of aluminium. Cryolite is a fluoride of sodium and aluminium, containing as much as 54 per cent. of fluorine, and in the crude state it is mixed with a considerable amount of quartz. Moller and Gudjonsson[3] chose 78 employees, all of whom had been engaged in work in a cryolite factory for more than two years, and they found four distinct lesions, each of occupational origin. (1) Pulmonary silicosis was present in various stages in half the subjects examined, the diagnosis being based on radiograms of the chest. The conclusion is unavoidable that the disease of the lungs was due to quartz-laden dust in the factory. (2) Changes, probably due to the deposition of calcium fluoride were found in the bones, ligaments, and muscular attachments. As radiographic investigation of the lungs proceeded, it was found that in 30 out of the 78 workers the shadows of the ribs, clavicles, and cervical vertebræ showed unusual density and abnormalities in the bone pattern. In typical radiograms the osseous pattern of the vertebræ is completely effaced and replaced by dense opaque shadows, and the transverse processes are covered by excrescences which represent calcification in ligaments. The shadows of the ribs show uniform increase of density, and there is pronounced calcification of the costal cartilages, though the articular cartilages are not affected. In the pelvis the pattern of the spongiosa is obliterated by dense opaque shadows resembling those seen in osteoplastic carcinomatosis, and along the periphery of the pelvic bones are blunt excrescences corresponding to calcified muscle attachments. None of these changes in the skeleton seems to have produced symptoms, but since chronic fluorine poisoning in animals leads to abnormal brittleness of the bones, one wonders whether these workers will sooner or later develop fractures. (3) A complete examination was made of the blood of all those workers in whom changes in the bones were found, and 14 out of 30 showed a reduction in the red cell count, the average figures being red blood-cells 3,700,000 per c.mm., colour-index 1·02, and hæmoglobin 77 per cent. No primitive red cells nor basophil stippling were discovered; the white cell count was normal, and the general health of the workers was apparently unaffected by the anæmia. (4) Nausea, loss of appetite, and vomiting was reported in 42 of the workers examined. These symptoms are supposedly due to slight corrosion of the mucous membrane of the stomach by hydrofluoric acid liberated from the swallowed dusts of cryolite, and they come on acutely soon after the dusty work is begun. Thus one of the principal managers of the industry, who visits the factory only occasionally, states that if he stays more than ten minutes in one of the places where the dust is particularly thick, he is obliged to get out into the open air in order not to be seized by vomiting. All the symptoms go away as soon as the patient gets out into the open air, and after working hours no feeling of discomfort remains.

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[1] Medicine (Baltimore), 1933, xii., 1.

[2] See The Lancet, 1931, i., 982.

[3] Acta Radiologica, 1932, xiii., 269.

In this country so far workers in fluor-spar (calcium fluoride), enamel, and glass, have been found free from fluorosis of the bones in those cases in which the chest has been radiographed in the search for pneumoconiosis.

ANNOTATIONS

DOCTORS' HOBBIES

An exhibition held in the anatomical school of Trinity College during the meeting of the British Medical Association in Dublin deserves special mention. Dr. F. S. Bourke had collected there for the amusement and instruction of the visitors what was described in the catalogue as a motley collection representing the diverse interests which from time to time have occupied the leisure of men when they relaxed from the arduous toils of an exacting profession. Being an artist and collector himself, Dr. Bourke was able effectively to comb the four provinces of Ireland in his search for material and to form an exhibit probably unique in the annals of the Association. "Here"—to quote from the very scholarly catalogue—"are trophies won on the hazardous field of war and in the clean conflict of sport, not least amongst them those of an Olympic athlete (Sean Lavan) who has brought honour alike to his country and to his profession. Here are antiquities from the prehistoric Irish elk to the rushlight that once shed its infant beam on Shannon's shore. Here is cunning of cast and sculpture, of work in metal and in wood, beauty of jewel and enamel, showing a craftsmanship as keen as any that has come from Tutankamen's tomb. Here is melody of measured word, reflect of our Irish bards of old." Hobbies, Dr. W. Doolin reminds us in a prologue, is an apt term for the collection, for the hobby was a small horse of Irish breed, trained to an easy gait, whose rider never need fear fatigue. For the majority of medical men compelled by the exigencies of service insensibly to work in an ever-narrowing groove, walking of evenings in the shadow of the clinic even after they have left it, the exhibition was a valuable object lesson in one of the best forms of release. There were in all 251 exhibits by 51 exhibitors, many of intrinsic interest: fishes such as an enormous Porbeagle shark caught off Achill Island last autumn or a trout caught on dry fly on two successive days; models of sailing boats; collections of useful articles made in leisure moments from old bits of scrap or used to while away the time in the trenches; and a surprising number of pleasing pictures in water colour, oil, pen or drypoint. The catalogue itself contains curious bits of information—e.g., that the song "Robin Adair" was written about a Dublin surgeon who left his country under distressful circumstances to become surgeon to Chelsea Hospital and later surgeon-general. The writer was Lady Caroline Keppel to whom Robert Adair was betrothed. And again, the reason why the remains of the Irish elk are nearly always of males is because the males on account of their huge antlers, could not swim and were easily drowned. The exhibition was visited throughout the meeting by a constant flow of members and their friends, to the pleasure of whose stay in Dublin it undoubtedly contributed in no small degree.

TESTS OF CIRCULATORY EFFICIENCY

Many laboratory tests of circulatory function have been investigated; among others there are the determination of circulation-rate, circulating blood volume, oxygen content of venous and arterial blood, vital capacity, and oxygen consumption before and after exercise. A paper by G. Nylin[1] gives his results chiefly with the last named. He determined, before and at fixed times after graduated work (which consisted in walking on stairs), the oxygen consumption, minute volume of the heart, blood pressure and pulse-rate, both in normal people and those with various grades of heart disease. It was found that the increase in oxygen consumption after work, expressed as a percentage of the resting value, varies within fairly narrow limits in healthy persons, and is independent of body-weight, provided that the latter is within physiological limits. In patients with heart failure with congestion there is a consistently greater increase after work; in borderline cases of heart failure the increase is more doubtful and the figures overlap those given by normal people. Similarly, values for basal metabolism and minute volume obtained in failure cases at rest, and for increase in ventilation after work, are not reliable for diagnosis, since they partly overlap those for healthy subjects.

These results confirm the general view that in the diagnosis of circulatory inefficiency laboratory methods at present add little or nothing to clinical observation. Where heart failure is severe the clinical diagnosis is easy and can be made with certainty without further tests. It is in the early stages of circulatory failure where the clinical signs are equivocal or lacking that further tests are required for the interpretation of symptoms suggesting a possible cardiac origin, and unfortunately it is just in such cases that the methods reported fail in their aim.

MELIOIDOSIS

Recognised as occurring sporadically in the Malay States and in Burma since 1912, melioidosis has of recent years been encountered elsewhere, and when the condition becomes more widely known and better methods for an early diagnosis are devised it is probable that the distribution will be found to be far wider than was hitherto imagined. In a publication[2] from the Institute of Medical Research of the Federated Malay States, Dr. A. T. Stanton and Dr. W. Fletcher have incorporated the bulk of their experience of this disease together with much of the work that has been done by other investigators. The disease occurs naturally in small animals as well as in man, rodents in particular being susceptible to natural infection. It has been assumed but not proved that rats constitute the normal reservoir of infection; few instances of melioidosis infection have in fact been found when large numbers of rats have been examined in plague surveys. Normally the disease appears as single isolated cases, but upon one occasion it occurred in true epizoötic form when heavy losses were encountered amongst small laboratory animals at Kuala Lumpur. On this occasion infection was traced to the food-supply. The alimentary tract has been regarded as the normal portal of entry of infection—again on scanty experimental evidence. The causal organism named after Whitmore has been classified in the Pfeifferella group by Topley and

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[1] Acta Med. Scand., 1933, Suppl. lii.

[2] Study No. 21: Melioidosis. London: John Bale, Son, and Danielsson, Ltd. 37 plates. Pp. 59.

Wilson on account of its close resemblance to *Pf. mallei*, the cause of glanders. Objections have been raised to this classification of *Pf. whitmori* because of its active carbohydrate fermentation and its motility. Carbohydrate fermentation, however, constitutes a difference of degree only, whilst the question of motility does not outweigh serological similarity and similarity of pathogenesis. As regards the latter point, both *Pf. mallei* and *Pf. whitmori* produce practically identical cellular reactions in the animal body. When the serology of the two organisms is studied some interesting and surprising points are revealed. In the first place the serological relationships of various strains of *Pf. mallei* are very indefinite: thus *Pf. mallei* (strain) Minett shows only a slight group relationship to *Pf. mallei* Java or Muktesar, and even less relationship to *Pf. whitmori*. *Pf. mallei* Java and Muktesar, on the other hand, are serologically identical with *Pf. whitmori*. This relationship is not, however, borne out by the pathogenicity of the organisms concerned, for all the *Pf. mallei* strains are highly infective to the equine species, whilst *Pf. whitmori* is only slightly infective to horses. It would appear that "H" agglutination cannot be demonstrated in *Pf. whitmori*, since various workers have designated this motile organism as serologically identical with strains of the non-motile *Pf. mallei*.

Since the disease runs a rapid course and is practically always fatal there is no time for antibody formation, and the diagnosis is generally only made at autopsy. Little is known of the value of allergic diagnostic tests or of the efficacy of antiserum for treatment. The chief problems to be faced in connexion with this disease are in the first place to devise rapid and practical methods of diagnosis so that the true distribution of the infection may be ascertained, and opportunity may arise for the investigation of curative procedures. Secondly, more information is required of the various combinations of circumstances necessary before infection takes place. *Pf. whitmori* is probably a common contaminant of food in certain parts of the world, and it survives a considerable time in unfavourable surroundings. That being so, full knowledge of the process of infection becomes very necessary if epidemics similar to the epizoötic outbreak at Kuala Lumpur are to be avoided.

OUR KNOWLEDGE OF ANIMAL NUTRITION

THE publication in America of "Clio Medica," a series of primers on the history of medicine, is a sign of the increasing interest now being taken in the evolution of the various branches of medical science. The latest addition to this series, of which ten volumes have already been published, deals with the history of nutrition.[1] It is a posthumous work of the late Dr. Graham Lusk and we are told in the preface that the preparation of it gave him great pleasure. This one can well believe for no one was better fitted than Lusk to describe the gradual growth of a subject to which he had devoted his life. He could say also that in contributing to that growth "*pars magna fui*" for he was, along with his fellow-countryman Atwater and with Rubner, one of the most distinguished pupils of Carl Voit, who, in turn, was a disciple of Liebig, the founder of modern nutritional physiology. It is fascinating to trace with Lusk the gradual increase of our knowledge of animal nutrition from its empirical beginnings down through the Middle Ages when progress was retarded by authority and by the influence of the humoral doctrines, until, with the birth of chemistry in the seventeenth century and the introduction of the experimental method, it began to become a real science. It was the work of the great German physiologists, Liebig, Voit, and Rubner, in the nineteenth century, however, that finally established the laws of quantitative metabolism and made the subject not only a science but a science almost as exact as mathematics. Rubner's enunciation of his "isodynamic law" and his subsequent demonstration that the principle of the conservation of energy holds good in mammalian physiology put the coping-stone on the edifice and it was only left for Atwater, Magnus-Levy, and Lusk himself (amongst others) to work out, with the aid of the respiration-calorimeter, the detailed application of the principles already established. In this little book Lusk only touches in one short chapter on the history of dietetics, but it would be an interesting task to show how our knowledge of food and its uses in health and disease has grown step by step with the growth of chemistry and physiology. Down to the beginning of the nineteenth century the word dietetics was still used in the old sense of "regimen of health," and we find Willich, in his lectures on Diet and Regimen (1800) defining it as "a systematic view of all objects relating to health in general and to food and drink in particular," whilst his treatment of the subject is really not so much in advance of the "Regimen Sanitatis" of the twelfth century or Tobias Venner's "Via Recta" of the seventeenth. By the middle of the nineteenth century, however, the influence of the work of the French and English chemists and of the German school of physiologists had made itself felt so that such a book, for example, as the late Dr. F. W. Pavy's "Treatise on Food and Diet" (1874) gives a presentation of the subject entirely modern in outlook and to which, on the quantitative side at least, later text-books have added nothing of moment. The demonstration of the importance of the qualitative side of dietetics and especially of the biological value of different proteins, of the vitamins and of the part played by the mineral constituents of food, has been the great contribution of the present century to the science of dietetics, but the growth of our knowledge of these matters it will be the task of some future devotee of Clio to record.

FUMIGATED FOOD

THE fumigation of foodstuffs is a growing commercial practice employed to destroy vermin that for one reason or another constitute an economic loss. The destruction of various insects infesting foods is in itself an admirable object, but according to Dr. C. N. Williams, of the U.S. Public Health Service,[1] it has reached proportions that call for special notice of its possible effects on the public health. The principal fumigants used are hydrocyanic acid, cyanogen chloride, sulphur dioxide, carbon bisulphide, ethylene oxide, ethylene dichloride, and chloropicrin. All of these are gases or are easily vaporised, and all are more or less poisonous and are absorbed to some extent by the materials to be fumigated. The choice offered to the consumer is not a cheerful one. On the one hand, verminous food is unpleasant to think of, if it is not unwholesome to eat, and on the other, even the remote possibility of consuming poison gas adsorbed on the surface of food is not to be dismissed lightly. So far as hydrocyanic acid is concerned the danger seems not to be real with dry foods. Where the water content is high the position is more serious.

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[1] Nutrition. By Graham Lusk. New York: Paul B. Hoeber. 1933. Pp. 142. $1.50.

[1] Amer. Jour. Pub. Health, 1933, xxiii., 561.

The results of ad hoc experiments on small animals, and apparently of large scale experiments on the general public conducted in the ordinary course of commerce, led the Surgeon-General of the U.S. Public Health Service in 1930 to state "the bureau is not acquainted with any evidence of harm to human beings from the use of food products that have been treated by the cyanide method. . . It seems that the experience of many years, covering the use of this material, furnishes us with better evidence of harmlessness than would be secured by much experimental work." One may, however, shudder at the temerity of those who seem to have started the practice without "much experimental work." Dr. Williams, reviewing the facts up to the present, agrees with the Surgeon-General, saying that all data point to a similar conclusion as regards other fumigants than hydrocyanic acid. He considers one and only one regulation reasonably justifiable in control of the practice—namely, ventilation of the fumigated product for 24 hours, or until the fumigant is no longer detectable by taste or smell.

DEATH-RATE OF RETIRED MERCHANT SEAMEN

In a note on the recent blue book on "Statistics relating to Mortality in the Mercantile Marine" during the year 1929–30, which appeared in November last and was noticed in our columns (The Lancet, 1932, ii., 1020), it was observed that deaths of merchant seamen seemed to be more numerous just as men were leaving the sea, for while 642 deaths occurred in that year among the 127,518 men at sea, the deaths of men ashore (i.e., unemployed or, as it may be said, retired) were in the first year after leaving the sea 625, in the second 155, and in the third 98. Not only so, but of the 625 who died in the first year after leaving, Major Edge reported 298 deaths in the first three months, 161 in the second three, 90 in the third, and 76 in the fourth period of three months after leaving the sea, the deaths being even more markedly numerous just after leaving the sea. No statement was made in his report as to the diseases causing this early mortality, and the time available for his investigation was short, but the question seemed to require elucidation. A request was accordingly submitted by Fleet-Surgeon W. E. Home to the Board of Trade that he should be allowed to examine the certificates (Form G.R. 109) reporting the 625 deaths which had occurred in the first year after leaving the sea. It was hoped to find out thus the causes of the deaths, and why they seemed so numerous just at a particular juncture. The President of the Board approved the idea, and the certificates were placed at Fleet-Surgeon Home's disposal so conveniently that the examination was made in two days. In reporting the result of his task to us, he says: "Though my inspection was obviously not so accurate as Major Edge's, and was not checked, my three-monthly figures were 312, 151, 95, and 64, while his were 298, 161, 90, and 76; thus the differences are not very great, and some light breaks through on the question. There were more deaths just after retirement, that is in the first three months, from pneumonia, tubercle, and cancer than in the active service or service afloat in a whole year. Even in so rapid an examination of the certificates it became obvious that some of these deaths ashore (or on the retired list) were deaths of men who had only been discharged from their ships when already sick, of men who had only become unemployed because taken ill or injured—i.e., had become unfit to go to sea—and had been discharged to hospital with a view to their replacement on board by other seamen. The youngest of the retired died at 18 from lymphosarcoma of the lung, the oldest at 80 from rheumatic fever. Several of the cases of cancer were in old men who had been, one thought, kept in their jobs for 'auld lang syne' until they had at last broken down seriously, and had then soon died in hospital. Besides those men who broke down while serving on ships, one cannot but think there must have been an even greater number who left their last ships as usual but were taken ill, and became unable even to apply for another." Fleet-Surgeon Home submitted to us a table showing the injuries and diseases from which retired seamen die and, quoting from the blue book, points out that we have in it statements now giving information that has never been made public before and for which all interested in the welfare of merchant seamen ought to be grateful.

THE CAROTID SINUS REFLEX

It has been known for many years that pressure on the carotid artery at the level of the cricoid cartilage will slow the heart beat, but it was not until 1923 that H. E. Hering discovered the carotid sinus. This observation set going a great number of experiments and investigations which have upset established doctrine. In 1927, for example, he was able to show that the response was due to a reflex, and not (as was thought) to direct stimulation of the vagus nerve, and that this reflex originates in the wall of the sinus of the internal carotid artery near its junction with the external carotid artery.

It has been proved experimentally that an increase in the pressure in the carotid sinus will diminish the flow of blood in the coronary arteries; yet D. Danielopolu (1929) has reported one case and S. Wassermann (1928) six cases in which pressure on the sinus relieved anginal pain. They explained this effect on the basis of special reflexes. Recently E. J. Wayne and L. B. Laplace,[1] working in the department of clinical research at University College Hospital medical school, have studied the effect of such pressure on nine patients suffering from angina of effort. They found that in all these patients when pressure was applied to the carotid sinus the duration of the pain decreased and there was a more rapid fall of blood pressure and pulse-rate than in the control tests. They think that the relief is due to a diminished energy expenditure of the heart, caused primarily by a diminished heart-rate with or without a diminished blood pressure. This diminution of energy more than outweighs the effect which pressure on the sinus might have in constricting the diseased coronary vessels.

It has often been noticed that in disease of the heart or vessels an exaggerated carotid sinus response is obtained on slight pressure, and this has been thought to be a simple and therefore valuable diagnostic sign of chronic myocardial disorder. With this in mind, Louis H. Sigler[2] has examined the reflex in 345 cases, which he divided into five groups, as follows: (1) arterio-sclerotic heart disease; (2) hypertension and hypertensive heart disease; (3) rheumatic heart disease; (4) neurocirculatory asthenia; and (5) general constitutional disease. Investigating first the effect of pressure on these various cases, he found that slowing of the heart was much more marked in the arterio-sclerotic and hypertensive groups; next in order came the rheumatic group; while the smallest degree of slowing was shown in those with neurocirculatory asthenia. In all groups females showed definitely less slowing than males. Sigler came to the conclusion that for an effective response it was necessary to have a "vagotonic predisposition," which was found more commonly in males and less commonly in cases of neurocirculatory asthenia; he further found that local disease tended greatly to accentuate the reflex. In a further investigation he set out to discover whether age, heart-rate, and variations in rhythm have any bearing on the carotid sinus reflex. So far as his observation goes the reflex is seldom seen in adolescence, grows commoner during adult life, and reaches a peak in middle age (41–60). Where there was much bradycardia no further vagal slowing was obtained, and in cases of moderate bradycardia the response was greatly diminished; there was no appreciable difference in response between sinus arrhythmia and normal sinus rhythm, except in arterio-sclerotic heart disease. His final investigation was concerned with the effect of carotid sinus pressure in cases with precordial pain as compared with those without precordial pain. In this he was working on the assumption that since increased vagal tone with its efferent vasoconstrictor effect on the coronary system may be at least partly responsible for angina in the presence of coronary sclerosis, a heightened carotid sinus reflex response, indicating increased vagal lability, should frequently accompany such pain. The cases showing precordial pain as a symptom were separated from each of the five groups, and their response to carotid sinus pressure was compared with the response given by those without precordial pain in each group. It was found that in all the groups except the patients with rheumatic heart disease, the response in cases with precordial pain was greater than in those without it.

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[1] Clinical Science [illegible] 933, vol. i., No. 1, p. 103. (This new [illegible] ir Thomas Lewis, F.R.S., from Univ [illegible] medical school, London, W.C. 1.)

[2] Amer. Jour. Med. Sci., July, 1933, p. 110.

HALLUX RIGIDUS

THE cardinal symptom of hallux rigidus is a progressive, more or less painful, limitation of dorsiflexion at the metatarso-phalangeal joint of the great toe. It is apt to develop soon after puberty, and according to most observers is more common in women than in men. In a recent paper[1] J. P. Strombeck discusses the causation of this condition and its relation to other deformities of the foot. In a series of 23 cases, 20 were females, and 12 of these were under 20 years of age. There is sometimes a history of trauma, such as stubbing of the great toe. Subjectively, there is pain on walking and other exercises requiring dorsiflexion of the great toe. There may be periods of exacerbation followed by partial remission of pain. The foot is typically of a long narrow form, in contrast with the spreading foot characteristic of hallux valgus. Flat-foot of the abduction type is common in association with hallux rigidus, but is not necessarily a forerunner of it. Several authors have associated the rigidity with an abnormally long great toe. This occurred in one case in the present series, and was due to increased length of the basal phalanx. Another anatomical peculiarity which has often been noted is abnormal length of the first metatarsal. In this series of cases, Nilsonne's index (which signifies whether the distal end of the first metatarsal oversteps or falls short of a line drawn tangential to the head of the second metatarsal and at right angles to its long axis) was positive in 48 per cent., as against 29 per cent. in 138 normal controls. But as the author himself points out, his figures are too small to be of much statistical value. Radiographically, the most marked features of the cases are a comparatively wide and flattened metatarsal head and changes typical of arthritis deformans, more marked the older the patient. The author suggests that the arthritis is primary, and that the contracture of the short flexor muscles and plantar ligaments which causes the deformity is a secondary complication. He points out that similar arthritic changes may be found in the opposite great toe, in unilateral cases, despite the absence of symptoms. The arthritic changes may be caused by functional overstrain, predisposing factors being the long slender foot with comparatively long great toe, and the wide flat metatarsal head already described. Strombeck compares the condition with Köhler's disease of the second metatarsal, and points out that several cases have been reported of both lesions in the same foot. He ascribes the relative frequency in females to a lesser degree of resistance to strain of their organs of locomotion. He hardly touches upon the question of shoes.

OUTDOOR SHELTERS IN LONDON PARKS

A CORRESPONDENT, who was for 17 years hon. secretary of a children's care committee, writes to complain that there is in the London parks hardly such a thing as an outdoor shelter where one can sit free from wind and damp. The need of convalescence in seaside or country would, she writes, be partly met if there were means for the invalid poor of getting five or six hours of daily rest in the open air, free from the danger of catching cold. She admits that some of the parks have small shelters for refuge from showers, but she has visited every large park in London without finding one shelter protecting from wind and damp, such as are to be found in any large seaside resort, and she asks us to use our influence in inducing the authorities to erect two or three such shelters in each of the large parks. With the exception of Highgate Wood, which is the concern of the corporation of London, the principal parks and open spaces in the metropolitan area are maintained either by the Crown or by the London County Council. In the Royal Parks, which cover some 2000 acres, a year or two ago the Commissioners of Works were stirred to beneficent activity, which resulted among other things in the opening during the summer of the Serpentine Lido and the provision of additional seats in sheltered places. The open spaces under the control of the L.C.C. are far more numerous and cover more than 5000 acres, and on the Council as paramount public health authority rests the responsibility for the prevention and treatment of disease by healthy environment. While we recognise what has been done by open-air schools and various kinds of playgrounds to give full value of sun and air to the younger citizens, we agree with our correspondent that the convalescent, and others in search of rest, may still seek in vain for it in the open air. We commend her desire to the attention of the parks committee of the L.C.C.

THE LATE PROF. GREENISH

THE influence of a man such as Henry George Greenish, who died in London on August 2nd, goes beyond that of his printed books and his spoken words. His "Text Book of Pharmacognosy," now in its sixth edition and already a classic, is typical of his method as a teacher. It gives in a few lines the salient characteristics of each article of materia medica, with the requisite amount of detail worked in afterwards in such a way as to sustain the interest of the student; and it is not overburdened with unwanted or occasionally wanted information. As might have been expected, the author of a scheme of instruction so soundly planned turned out some good students. But the help he was always ready to offer in the solution of problems brought to him from the outer world was perhaps his most characteristic contribution to pharmacognosy and the sciences allied to it. Endowed with a personality shrewd but not complex, no one left him without the satisfaction of having the problem, whatever it was, either solved or at least posed, set in its true relation to whatever else might be relevant. And his influence may be traced in the recently effected recognition of the Pharmaceutical Society's college as a constituent college of the University of London. It may be surmised that, as dean of the college, he had to persuade some, at all events, of the council of 21 elected members, forming the Society's administrative body, of the advantages to be secured by incorporation in a university representing authoritative standards in education, general as well as specialised. Whatever changes may occur in the administration of medicine and treatment, Greenish's work will remain a landmark.

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[1] Acta Chirurg. Scand., 1933, lxxiii., 53.

BARBITURATE SKIN LESIONS

DRUG eruptions are no longer among the rarities of dermatology, and with the increasing use of new synthetic preparations the practitioner must always be on the look-out for them. Those due to barbiturates are important, not only because these drugs are often prescribed, or taken without prescription, but also because intolerance to them is relatively common. The rashes may be erythematous, scarlatiniform, rubeolar or morbilliform, urticarial, miliary or bullous, erysipelatous, or of a type resembling the lichen urticatus of children. Some help in the differential diagnosis from these "acute specifics" is usually given by the absence of associated fever, but in a case of acute erythema due to veronal, reported in our columns a year ago by Dr. W. H. Gregory[1] the patient had a temperature of 103° F. The list of lesions is so long and varied that a diagnosis at sight is seldom made, even by the most experienced, but mistakes which may well have serious consequences would nevertheless be made but rarely if the possibility were not forgotten. A type of reaction that will be new to most readers is that described by F. Coste and M. Bolgert.[2] It appears to follow or coincide with the state of coma or deep sleep induced by the drug—e.g., veronal—and is a bullous or ulcerative lesion seen as a rule over the sites of pressure like an acute bedsore, which it may resemble in other respects too. Two cases are described. The first patient, a nursing sister, had taken 3·75 g. of a proprietary preparation containing veronal. She remained semi-comatose, with most reflexes abolished, for six days, and on regaining consciousness was found to have an ulcer about 4 in. in circumference on the left buttock. Her Wassermann reaction was positive, and the possibility of a local cause such as a bismuth injection having been excluded, a lesion in the spinal cord was tentatively considered. This explanation, however, was thought unlikely, especially as the cerebro-spinal fluid was normal. The ulcer healed in two months. The second case was that of a woman of 24 who took 4·3 g. of gardenal, another barbitone derivative. She was comatose for 48 hours only, but developed bullæ containing serous fluid on both soles. Necrosis supervened, and as the lesions were not due to hot-bottle burns it was arguable that the gardenal was to blame. About ten days later a scarlatiniform eruption appeared suddenly over the whole body, gradually becoming eczematous in some areas and urticarial in others. The ulceration on the soles healed eventually as in the first case. In seeking to explain the pathology Coste and Bolgert briefly discuss the possibilities of central or peripheral trophic disturbance, and a combination of the effects of prolonged local pressure and sepsis from the dejecta in a comatose subject. The abolition of defensive reflexes would support such a view, but the proof would require animal experiment.

DR. WILLEM STORM VAN LEEUWEN, who died at Leiden on July 30th, held a professorial chair as director of the University Therapeutical Institute there. His name is familiar in connexion with the causation and treatment of the allergic group of diseases, especially bronchial asthma and urticaria. At one time he regarded the use of tuberculin as the most valuable form of non-specific treatment in such cases, but later on, in an address to the Royal Society of Medicine, he ascribed his failure to achieve more than 50 per cent. of cures to the fact that climatic factors played such an important part in their causation, and he was led to study what he called the climatic allergens, with a view to eliminating his patients from contact with them in their homes. In pure cases of climatic allergy he regarded the allergen-proof chamber as the principal means of treatment. Such chambers were installed in a number of private houses, with the result that asthmatics were able to sleep in their chamber at night without attack, in the daytime going about their work. The chambers and the clinical results obtained with them were described in THE LANCET (1927, i., 1287).

OWING to the resignation of Sir Arthur Keith, the office of conservator of the museum and director of research of the Royal College of Surgeons of England is now vacant. Application for this appointment should be made in proper form before Oct. 7th.

Application is also invited for the Milroy lectureship for 1935 of the Royal College of Physicians of London. Announcements about both these appointments will be found in our advertisement columns this week.

LIVERPOOL CITY HOSPITALS: ANNUAL REPORT.—The report for 1932 of the Liverpool City Hospitals and Institutions calls attention to the greatly increased work done during the year as represented by 4093 more patients in the transferred institutions, and 596 patients in the sanatoria and isolation hospitals. Notwithstanding this increase there was a reduction of 301 in the number of deaths. By an increased turnover of beds and a "remarkable advance" in the work as continuation departments, involving 68,598 attendances by out-patients, a maximum use of the beds had been made and large economies effected. Additional accommodation has been provided for the maternity services. Blood-serum obtained from persons who had previously suffered from infection had been used in the children's hospital as a means of preventing the spread of measles. Surgical operations increased from 4513 in 1928 to 7191 in 1932, and a second theatre has been provided at the Walton Hospital. In all the transferred hospitals there is insufficient accommodation for nurses, but arrangements have been made to cope with it, and for the Smithdown-road Institution plans for the accommodation of 164 nurses, at a cost of £16,000, await the sanction of the city council.

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[1] THE LANCET, 1932, ii., 110.

[2] Bull. et mém. Soc. méd. hôp. de Paris, 1933, xlix., 779.

SPECIAL ARTICLES

LEAD POISONING IN THE NORTH-EAST OF SCOTLAND

By

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THE investigation reported in this paper, which embraces chemical analysis for lead of water-supplies, urines and fæces, and clinical and hæmatological examination of many persons, was undertaken as a result of information derived from three cases of lead poisoning admitted to the wards of Aberdeen Royal Infirmary, under Prof. Davidson. It is proposed, therefore, to deal with these cases individually as an introduction to the report submitted.

Three Cases

CASE 1.—Mrs. A., aged 42, admitted on March 3rd, 1931. As this case has been described in detail in a paper dealing with macrocytic hæmolytic anæmia [1] only a summary need be given here.

Previous history.—Patient had had attacks of abdominal pain periodically for many years. The pain had little relation to food, but was at times sufficiently severe to make her sick. The bowels were constipated; there was no history of epistaxis, hæmatemesis, or colic.

Present illness.—About one month previous to admission her doctor reported that she had symptoms of influenza with severe abdominal pain and sickness.

Examination.—The patient was a well-nourished woman with a mild degree of jaundice. Physical examination of all systems was negative except for tenderness in the right hypochondrium over the gall-bladder and liver. Urine: trace of albumin and sugar present; casts absent; bile absent; urobilinogen present. Blood count: red blood-cells, 2·5 million; hæmoglobin, 55 per cent.; colour-index, 1·1; white blood-cells (including nucleated red blood-cells), 7000; reticulocytes, 5 per cent.; icterus index, 33; van den Bergh indirect reaction, positive. Price-Jones curve typical of pernicious anæmia.

Despite treatment with liver extract and ventriculin the blood level failed to rise, although at times the reticulocyte percentage count reached 25. A stationary blood count with high reticulocyte counts indicated that a hæmolytic anæmia was present, and when free hydrochloric acid was found in the gastric juice the diagnosis of pernicious anæmia was discarded. During the next six weeks the patient had many attacks of abdominal pain; jaundice became more marked and, in addition, mental changes and convulsions occurred. The patient gradually improved and went home, but returned to the ward within four weeks, extremely ill, and suffering from the same symptoms as already described. Eventually she was removed to the Royal Mental Hospital, Aberdeen, suffering from acute confusional insanity. After six weeks' treatment she steadily improved, and was discharged on Oct. 3rd, 1931. On Jan. 25th, 1932, her doctor requested that she should be readmitted to Aberdeen Royal Infirmary, and stated that after remaining well for several weeks persistent epigastric pain and vomiting occurred. Physical examination again failed to reveal anything to account for the symptoms, and the blood count was: red blood-cells, 2·5 million; hæmoglobin, 45 per cent.; colour-index, 0·9; reticulocytes, 2 per cent. Marked punctate basophilia (*for the first time*) was found to be present.

The possibility that lead was the unsuspected toxic agent was immediately considered, and the patient was cross-examined with regard to th water-supply of her house. At first lead contamination appeared to be ruled out, since the patien stated that she lived in a cottage in the country an the water for the house was drawn from a well no water cistern existing in the cottage. Fortunately cross-examination was continued and the informatio elicited that the water was carried by a lead pip from the well, which was 400 yards distant, an pumped by hand when required. It was therefor obvious that the water would lie for long period in the pipe, which would act as a lead cistern. sample of fæces was submitted to analysis and foun to contain 6·6 mg. of lead per 100 g. dried fæces Two samples of water from the pipe were examine and showed 1·7 and 2·1 parts of lead per 100,000 o water. A diagnosis of lead poisoning was made and the discovery of the toxic agent made perfectl plain the symptoms which had so long baffled us It is difficult to know how a correct diagnosis i the early stages could have been made, since n peripheral neuritis was present, there was no blu line on the gums the patient being edentulous, an the blood picture was absolutely atypical.

CASE 2.—Miss B., aged 18, admitted on May 30th 1932. For many months the patient had bee feeling easily tired. Five weeks before admissio she was suddenly seized with severe pain in th upper abdomen, which doubled her up and at time radiated to the right iliac fossa. The pain appeare to have no relation to food. Vomiting was frequen and severe. The bowels were regular previous t the onset of the pain, but since then constipatio had been present. A diagnosis of appendicitis wa made by her family doctor and the patient was transferred to the surgical wards, under the charge o Mr. F. K. Smith.

Physical examination.—Apart from abdominal tenderness on palpation nothing abnormal was found in any situation, and the patient was transferred to the wards under the charge of Prof. Davidson. Blood count: red blood-cells, 2·8 million; hæmoglobin, 45 per cent.; white cells, 6000. Examination of a stained film revealed many red cells with punctate basophilia. There was no blue line on the gums and no wrist-drop. Examination of the fæces on May 26th, 1932, showed 5 mg. of lead per 100 g. dried fæces to be present, and on three other occasions positive tests were reported. A diagnosis of lead poisoning was accordingly made and the water-supply investigated. This showed that 0·22 part of lead per 100,000 was present.

Inquiry with regard to the other members of the household revealed the following facts: In January, 1931, the patient's grandfather suffered from severe abdominal pain and colic. He was admitted to a nursing-home, where examination was negative, and he accordingly returned home. In 14 days the pains returned and he was readmitted to the nursing-home, where he was operated on for appendicitis. Nothing abnormal was found. He returned home, and after a month colic again appeared and grew progressively worse. The patient died on July 15th, 1932. An uncle and two maids in the house had all suffered from constipation and severe abdominal colics. There can be no doubt whatsoever that five of the inmates of this household suffered from lead poisoning.

CASE 3.—Mr. C., aged 56, admitted on July 6th, 1931, complaining of constipation and pain in the abdomen.

Physical examination revealed slight jaundice and severe anæmia, a blue line was found on the gums, and punctate basophilia was present in the blood film. The water-supply of his dwelling was investigated and found to contain 1·5 parts of lead per 100,000 of water. A diagnosis of lead poisoning was accordingly made. He became acutely confused and disorientated, and was transferred to the Royal Mental Hospital, Aberdeen. After some months he was discharged, having apparently made a good recovery. Information obtained from his doctor shows that he died at home some months later.

Examination of the water-supplies of the houses of these three patients elicited the following information: In every case there was an absence of lead cisterns and pipes in the house, and the source of the drinking water was at a considerable distance and was brought to the vicinity of the house in lead pipes. It was obvious, therefore, that the lead contamination of the water, proved by chemical assay, occurred during the period in which the water was in contact with the lead pipe, particularly at night when no water was being pumped. Since it seemed not unreasonable to suppose that this type of water-supply might be of frequent occurrence in country districts, it was decided to approach the medical officer of health with a view to undertaking a large-scale investigation.

Method of Investigation

Areas were mapped out and particular attention was paid to water-supplies which were conducted to the dwellings by lead pipes from sources at a distance. Samples of water were obtained and submitted for analysis to Mr. Charles Wilson, B.Sc., working under the direction of Mr. Alexander B. Weir, city analyst. In most cases where the lead content was found to be above the accepted limits of safety, a clinical and hæmatological investigation of the individuals in such dwellings, together with a quantitative estimation of lead in their urines and fæces, was carried out. Table I. shows the lead content in the water-supplies of 160 dwellings.

TABLE I.—*Lead Content of 160 Water-supplies* (parts per 100,000)*

—	Less than 0·05	0·05–0·1	0·1–0·25	0·25–0·5	0·5–1·0	1–1·5	Greater than 1·5	Total.
W.S.	52	38	36	22	5	5	2	160

W.S. = Number of water-supplies.

* In cases where the water-supply has been analysed at different times during the day the lead content of the earliest sample is taken.

CLINICAL

One hundred and two persons were questioned with regard to constipation, colic, muscular weakness, and examination of the gums was made for the presence of a blue line. In addition a blood film was taken, and if obvious anæmia was present a full blood count was done. Of 102 persons examined 51 (50 per cent.) had symptoms that might be attributed to lead poisoning. Constipation and abdominal pain of some degree were by far the commonest symptoms complained of, but it is difficult to know how much weight to lay on such symptoms per se as evidence of lead poisoning. No definite blue line on the gums was discovered, but a large proportion of the adults were edentulous. Undoubted wrist drop was present in only two cases.

HÆMATOLOGICAL

Prolonged staining with Leishman's stain was the method used for the demonstration of punctate basophilia. Other methylene-blue stains [2,3] were tried, but full staining with Leishman was found to be a simple and satisfactory proceeding. Moreover, the absence of punctate basophilia from hundreds of blood films stained in this way, from cases attending the blood clinic in Aberdeen, served as a control in regard to the rarity of punctate basophilia, except where the degree of anæmia was severe. The test was considered negative when no cells showing punctate basophilia were encountered in a five-minutes' search. If from 1 to 5 such cells were found in five minutes the result was considered mild, 5 to 10 cells moderate, and 10 + severe. Of 59 persons examined 26 (44 per cent.) showed no punctate basophilia, 18 (30·5 per cent.) a mild degree, 9 (15·2 per cent.) a moderate degree, and 6 (10 per cent.) a severe degree. Of 42 hæmoglobin estimations 16 showed some degree of anæmia—i.e., less than 85 per cent. hæmoglobin. It would be unwise to draw any deductions as to whether lead was the cause of this anæmia, as most of the cases (10) occurred in women of the childbearing age [4] and the anæmias of severest degree were not in general associated *with marked punctate basophilia.*

Table II. shows the amounts of lead found in 53 samples of urine and 27 of fæces. Table III. shows lead estimations in the urines and fæces of 20 persons in the city of Aberdeen. The average amount of lead in the urines was 0·069 mg. per litre and in fæces 4·5 mg. of lead per 100 grammes dried weight. These figures agree with those of Kehoe and Thamann,[5] and it is generally accepted that the upper limit of normality is 0·1 mg. of lead per litre of urine, and 5 mg. of lead per 100 grammes dried fæces. Table II. makes it clear that excessive amounts of lead were being ingested, since 92·6 per cent. of fæces examined contained amounts of lead greater than normal. That excessive amounts were also being absorbed is indicated by the fact that 92·5 per cent. of urines contained pathological quantities of lead. The urines and fæces analysed were not obtained solely from persons drinking heavily contaminated water, but represented indiscriminate sampling of the whole group.

TABLE II.—*Lead Content of Urines and Fæces of 80 persons*

URINES: mg. lead per litre.	Less than 0·1	0·1–0·2	0·2–0·5	Over 0·5	—	Total.
Cases	4	24	23	2	—	53
FÆCES: mg. lead per 100 g. dried fæces.	Less than 5	5–10	10–25	25–50	Over 50	—
Cases	2	7	11	5	2	27

TABLE III.—*Lead Content of Urine and Fæces of 20 persons resident in Aberdeen*

URINES: mg. lead per litre.										
0·06	0·06	0·07	0·09	0·04	0·08	0·07	0·09	0·07	0·06	Aver. 0·069

FÆCES: mg. lead per 100 g. dried fæces.										
2·44	5·2	3·5	5·5	6·7	4·5	4·1	5·7	3·4	3·9	Aver. 4·5

Methods of Prevention

There are at least three methods by which lead contamination might be obviated: (1) The simplest and cheapest method would be to pump, and, in gravity-fed supplies, to run the water for a certain time, thus removing in whole or in part the water which had lain in contact with the pipe over night. (2) Should this method fail, liming the water by passing it through lime chips would cause a reduced absorption of lead, consequent on decreased plumbo-solvency of the water, and also by depositing an insoluble layer on the interior of the pipe. (3) Lastly, should (1) and (2) fail the question of replacement of the lead pipes by iron pipes would need to be considered.

TABLE IV.—*Effect of Running the Water on the Lead Content*

I.—WATER WITHDRAWN FOR ORDINARY HOUSEHOLD PURPOSES

—	Parts per 100,000.		
Early morning sample	0·10	0·53	1·4
Midday sample ..	0·03	0·17	1·3
Result	Successful.	Partly successful.	Unsuccessful.

II.—WATER RUN CONTINUOUSLY FOR 10 MINUTES

—	Parts per 100,000.		
Sample before running	0·11	0·64	1·38
Sample after running	0·02	0·17	1·22
Result	Successful.	Partly successful.	Unsuccessful.

The first method was investigated in two ways. In 68 water-supplies analyses were made of an early morning and a midday sample, taken after the water had been used for ordinary household purposes.

In 25 cases both samples contained less than 0·05 part of lead per 100,000 of water. The first sample in the remaining 43 cases showed a lead content of more than 0·05. This was reduced in the second sample to less than 0·05 in 22 cases, to between 0·05 and 0·1 in 8 cases, to between 0·1 and 0·2 in 5 cases, and was still greater than 0·2 in 8 cases. In 110 houses the water was run continuously for five to ten minutes and analyses carried out of a sample taken before and after. In 20 cases both samples contained less than 0·05 part of lead, while the first sample in the remaining 90 cases contained more than 0·05 part of lead. This was reduced in the second sample to less than 0·05 in 34 cases, to between 0·05 and 0·1 in 22 cases, to between 0·1 and 0·2 in 19 cases, and was still greater than 0·2 in 15 cases.

Typical examples of these cases are shown in Table IV. It was concluded from the investigation into 178 water-supplies that in 45 households the supply was already satisfactory while in a further 56 cases (42 per cent.) the simple procedure of running the water for a few minutes reduced the lead content to what may be considered a safety level. In 30 other cases (23 per cent.) in which the lead content was lowered to between 0·05 and 0·1, additional time spent in withdrawing the water might possibly have resulted in a satisfactory water-supply. In 47 cases (35 per cent.), however, this object could not be attained by this method. It should be mentioned that to obtain satisfactory results the householder must conscientiously and regularly undertake the emptying of the pipes before using the water for household purposes. Not every individual can be relied upon to carry this out. Moreover, in dry seasons when water is scarce, an additional difficulty presents itself. An analysis of the cause of success or failure by this method showed that several factors were concerned in this problem. A comparison of the degree of lead contamination with the distance of the source of water from the house, soon established the fact that the length of the lead pipe was an important factor in causing contamination of the water-supply. When from any mechanical inefficiency the rate of flow was reduced, the lead content of the water was found to be particularly high, and in such households running the water for a limited time failed to reduce the lead content to safety limits. Investigations of the plumbo-solvent property of water were carried out by placing three 3-inch lengths of ½-inch lead piping in 500 c.cm. of the water in a beaker for about 12 hours. Table V. shows that the plumbo-solvency must be considered to be a factor of importance, since in general there was a parallelism between the lead content of the water and its plumbo-solvent properties.

Discussion

The remarkable improvement in purity of the water-supplies of the great cities within recent years has apparently eliminated drinking water as a cause of plumbism, if the views expressed in a recently published book on public health are accepted. Robertson[6] states: "The occurrence of lead poisoning as a result of drinking water is now more or less of historical interest." Accordingly, in areas where no industrial occupations involving lead are proceeding, it is not surprising that the presence of lead poisoning may be overlooked. The fact that in the past two years we have had four severe cases in our wards, and know of four others, indicates the advisability of keeping it in mind.

The standard of safety for lead in drinking water is somewhat difficult to establish, as judged by the literature[7 8] and the opinions of leading authorities[9] in this country whom we have consulted. All are agreed, however, that a quantity of lead greater than 0·05 parts per 100,000 in the drinking water is undesirable. It will therefore come as a surprise to many public health authorities to hear that no fewer than 108 out of 160 water-supplies were above this safety level; further, that the lead was being absorbed in dangerous quantities is clearly shown by the figures given for lead in urines and the results of blood examinations. Nevertheless it must be admitted that the great majority of the persons

TABLE V.—*Indicates the Relation between the Length of the Lead Pipe, the Plumbo-solvent Property of the Water, and the Degree of Lead Contamination Present*

—	Parts per 100,000.																	
Lead content of first sample	0·4	0·49	0·40	0·01	0·02	0	0·02	0·01	0·01	0·6	1·07	0·88	0·57	1·6	0·56	0·53	0·44	1·10
Plumbo-solvency..	0·82	0·75	0·45	0·08	0·14	0·10	0·08	0·11	0·10	0·21	1·1	0·52	0·27	0·59	0·37	0·21	0·12	0·75
Length of lead pipe (yards)	80	20	100	300	30	0	250	P*	P*	250	200	50	400	300	1	15	300	500

P = Lead pipes present only within the house.

examined were not suffering from any of the major manifestations of lead poisoning. The problem therefore arises whether the dangers of drinking water with a lead content greater than 0·05 part per 100,000 have not been exaggerated. Since two of our patients have died and others have been seriously ill, preventive medicine demands that such risks should not be allowed to continue. The important part played by idiosyncrasy in the disease, and the well-known fact that muscular paralysis is liable to occur when a person becomes debilitated from illness or muscular exertion makes it apparent that at any time an individual excreting excessive amounts of lead in the urine may develop definite signs of plumbism. It is of some interest in connexion with lead idiosyncrasy to consider whether any relationship can be found between the lead content of water, the excretion of lead, the degree of punctate basophilia, and the presence of symptoms. From a study of our figures we were unable to show any close parallelism between punctate basophilia and the degree of contamination of the water or the amount of lead excreted in the urine. The average lead content of the water-supplies of the cases presenting symptoms that might be attributed to plumbism was only slightly higher than that of the cases presenting no such symptoms (0·54 as compared with 0·42 part per 100,000). The amount of lead in the fæces were definitely higher (average 46·2 mg. per 100 grammes dried fæces) in cases with heavily contaminated water (average 0·47 part per 100,000) than in cases of slightly contaminated water (average of 7·62 mg. per 100 grammes for water-supplies averaging 0·20 part per 100,000). While such a result is to be expected the degree of absorption of the lead ingested is a variable factor, as shown by a consideration of the urinary excretion of lead. Of the 28 cases whose urinary excretion of lead was less than 0·2 mg. per litre, the average amount of lead in the water-supplies was 0·44 part per 100,000. The cases excreting more than 0·2 mg. per litre of urine had water-supplies containing on an average 0·50 part per 100,000, or practically the same as the first group. In the production of the symptoms of lead poisoning factors affecting the mobilisation of lead from the bones must be considered, as well as those affecting its absorption.

In view of the unexpected results of this investigation it will be advisable for medical officers of health in other parts of the country to investigate water-supplies of the type described. We shall be surprised if similar results are not obtained. Support of this contention is forthcoming from a small investigation just completed in an area 50 miles distant from the district considered in this paper. In 12 out of 49 water-supplies the lead content was greater than 0·05 part per 100,000 and in several cases was very high.

Conclusions

Consequent on certain severe cases of plumbism being admitted to Aberdeen Royal Infirmary, an investigation was carried out into the types of water-supply, the plumbo-solvency of the water, and the lead content. A clinical and hæmatological investigation of the individuals using the water, and a quantitative chemical investigation of their urines and fæces for lead were made. (1) The drinking water was found to have a lead content beyond the safety limit of 0·05 part per 100,000 in 108 houses out of 160. (2) Quantitative investigation for lead in the urines and fæces of 80 persons showed excessive amounts in 74 cases. (3) Hæmatological investigation: punctate basophilia was found in 33 cases out of 59. (4) Clinical examination: 8 persons were found to be suffering from severe plumbism, and 51 out of 102 had symptoms suggestive of it in a mild degree. (5) Certain measures to eliminate the contamination of these water-supplies are discussed.

Our thanks are due to Mr. E. W. Conchie, sanitary inspector, county of Kincardineshire, for his coöperation and help in this investigation; and also to the Medical Research Council for a grant in connexion with part of the expenses incurred.

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THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

THE following appointments are notified: Surg. Comdrs. T. J. O'Riordan to *Vivid* for R.N. Hosp., Plymouth, and J. F. M. Campbell to *Resolution*.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Sub-Lt. P. E. F. Routley to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS

Lt.-Col. J. R. Lloyd retires on retd. pay.

Lt. (on prob.) G. L. McLeod is secd. under the provisions of Art. 213, Royal Warrant for Pay and Promotion, 1931.

Lts. J. Beggs and R. St. J. Lyburn resign their commns.

TERRITORIAL ARMY

Lt. E. J. B. Sewell to be Capt.

ROYAL AIR FORCE

Flight Lt. R. H. Stanbridge is promoted to the rank of Squadron Leader.

INDIAN MEDICAL SERVICE

The undermentioned appts. are made:—To be Lts. (on prob.): F. W. Allinson, F. R. Cawthorn, F. V. Stonham, J. F. J. Doyle, J. M. Matthew, W. B. Stiver, and J. J. Barton.

Capt. D. J. Young resigns his commn.

DEATHS IN THE SERVICES

Lt.-Col. George Waters, I.M.S., retd., who died at his residence, Lorrenden Lodge, Beddington-lane, Croydon, on July 25th in his 88th year, was a native of Caithness. He was educated at Thurso Academy and at Anderson College, Glasgow, qualifying with the L.R.C.P., L.R.C.S. Edin. in 1869. He immediately joined the Bombay Medical Service and in the following year served in the military department and acted as ophthalmic surgeon. Later he became civil surgeon at Bushire in the Persian Gulf. In 1877 he was appointed surgeon to the Governor of Bombay, and a few years later served as physician and registrar to the Jamsetji Jijibhoy Hospital and professor of pathology at the Grant Medical College, Bombay. He was presidency surgeon to the third district in 1889 and retired in 1901.

PANEL AND CONTRACT PRACTICE

THE COMING OF AGE OF THE NATIONAL HEALTH INSURANCE SCHEME

A RETROSPECT

BY G. F. MCCLEARY, M.D.

To the younger generation of practitioners the coming of age of the National Health Insurance scheme, which was celebrated on July 17th by a luncheon with Mr. Lloyd George as principal guest (THE LANCET, July 22nd, p. 205), may seem nothing more than a special anniversary of an institution whose existence and smooth working are taken as a matter of course. Such practitioners may only with difficulty imagine a time when there were no panel patients, and no insurance committees. But to the older generation, those who were in practice during the eventful years 1911–12, the birthday celebration recalls a time of heated controversy and direful foreboding. The scheme began its voyage on stormy seas. Mr. Lloyd George at the luncheon meeting likened its beginning to the rounding of Cape Horn—"very chilly winds ahead, heavy seas, and dangerous rocks ready to tear their craft"—and then, "sailing the Pacific Ocean." The scheme was indeed a bold undertaking. Compulsory health insurance in this country did not begin gradually as in Germany, where it was first introduced. The German scheme originally applied to not more than 10 per cent. of the total population. In Great Britain the persons who 21 years ago became compulsorily insured against sickness and invalidity formed no less than one-third of the total population. Compulsory insurance introduced important, and, as many feared, irritating changes into the social life of the country. Weekly contributions were required not only from the insured persons but also from their employers; and the obligation to insure was placed primarily upon the employer, who was made responsible for the payment of his insured employees' contributions as well as his own. Since the scheme provided medical treatment for many millions of insured persons it needed many thousands of medical practitioners to work it, and German experience had shown that there might be considerable difficulty in securing the willing coöperation of the medical profession. It is perhaps more evident now than it was 21 years ago that the launching of the health insurance scheme was an adventure which might well have daunted a pilot less intrepid and far-sighted than he who was then at the helm.

The National Insurance Bill was introduced into the House of Commons by Mr. Lloyd George on May 4th, 1911. It made an opportune appearance, for the report of the Poor Law Commission, which was published two years previously, had shown the need for doing something on a large scale for the wage-earners of the country in time of sickness. The Bill in its main principles found general acceptance. It was read a second time without a division, and even in the committee stage it had a comparatively smooth passage, considering the extraordinary range, variety, and complexity of its provisions. The result was a great parliamentary triumph for Mr. Lloyd George, who in dealing with doubters and objectors both in and out of Parliament displayed remarkable powers of exposition, persuasion, and conciliation. He had the competent assistance of the late Mr. Charles Masterman who, backed by the most resourceful of private secretaries—now world-famous as Sir Arthur Salter—was never at a loss in dealing with an interminable series of insidious Parliamentary questions. At the third reading the Opposition moved an amendment to postpone the further consideration of the health insurance part of the Bill until the next session, but it was rejected by a large majority, and the Bill received the Royal assent on Dec. 16th, 1911. The health insurance scheme, however, became more unpopular in the year after the passing of the Insurance Act—i.e., the year before the benefits, except sanatorium benefit, began. Its provisions were misunderstood and frequently misrepresented. Some part of the disfavour with which it was regarded was due to the inclusion of domestic servants among the persons to whom compulsory insurance applied. This provision brought home to the mistress of the house that she would be obliged to stick stamps on the contribution cards of her household staff, and a campaign was started against "stamp-licking," emanating from a class of society which at that time displayed a childish animosity against the author of the scheme. Fortunately the administration was in capable hands. Sir Robert Morant, the chairman of the English Insurance Commission, was a man of immense ability, driving power, and resource, and he gathered round him some of the ablest of the younger civil servants—indeed, it may be doubted whether any building has housed a more brilliant band of administrators than the converted hotel in Buckingham Gate which formed the early headquarters of the Insurance Commission. And then upon the scheme which had begun to work in an unfavourable atmosphere fell the catastrophe of the war, seriously depleting the panels by the demands for medical officers for the armed forces and putting a stop to the development of medical benefit which was planned in the spring of 1914. At that time an extension of the insurance medical service by the addition of a complete system of specialist, nursing, and laboratory services was worked out, when the necessary money was voted by Parliament; but with the outbreak of war the money was required for other purposes, and the insurance medical service has to this day remained in its original form as a service of general practitioners only—a result which was not anticipated 21 years ago, and cannot be regarded as satisfactory, especially in view of the wide range of treatment given by the continental insurance schemes.

During the passage of the scheme through the House of Commons Mr. Lloyd George accepted amendments that modified in some important respects the arrangements to be made for providing medical services. It was at first proposed that the approved societies should administer medical benefit as well as the cash benefits of the scheme. The proposal was strongly resisted by the British Medical Association, at whose instance medical benefit was placed in the hands of new local bodies, the insurance committees, upon which the local medical profession was represented. This step marked an important stage in the development of health insurance, for it was the first practical expression of the modern tendency, which steadily grows stronger, to separate the cash benefit side of health insurance from the provision of medical treatment. The doctors pressed for further concessions. They contended that the intimate and confidential relation of doctor and patient which obtains in private practice should be secured unimpaired in insurance practice, and that this necessarily involved giving every insured person the right to choose and, if need be, change his doctor. And in order to give the widest possible field of choice, and also to secure that the panel doctors should not form a class separate from the general body of the profession, they maintained that every qualified medical practitioner should have a statutory right to undertake the treatment of insured persons if he wished to do so. The doctors pressed also for the representation of the profession on the insurance commissions and the local insurance committees, and for the creation in every county and county borough of a local medical committee charged with important administrative functions. These and other demands were conceded, and it is chiefly because of the concessions that the medical provisions of the scheme have, apart from some initial friction, worked smoothly and with general good will, and without the embittered disputes between doctors and insurance societies, such as have impeded the progress of health insurance in some continental countries. The scheme works on a gigantic scale. Every six months the 15,000,000 insured persons in England and Wales send in to their approved societies their contribution cards, which are examined, the stamps on each card counted, and the total value of the stamps credited to the appropriate society. Every year the 15,000 doctors write about 55,000,000 prescriptions. Each ingredient of an insurance prescription is priced, and the total cost of the prescription ascertained so that the 10,000 insurance pharmacists may each receive his due remuneration. The small weekly sums paid in sickness and disablement benefits make up in the aggregate an annual sum of about £15,750,000, and the amounts spent annually in medical benefit, maternity benefit, and the additional benefits are about £9,250,000, £1,590,000, and £3,000,000 respectively. That a system so vast and so intricate in detail should work so smoothly is a striking tribute to the good sense and good temper as well as the administrative capacity of the British people.

What has the scheme done? In the first place it has given the insured persons, upon whose labour the economic existence of the nation depends, some measure of security in times of sickness. The weekly payments of sickness and disablement benefits have brought money into the home when most urgently needed to keep the home together, and by thus mitigating the anxiety of the patient and his family have made for early recovery. The money paid out in maternity benefit enables provision to be made at a critical time for mother and child, although maternity benefit might with advantage be extended to include the provision of midwifery and medical attendance as well as a cash payment. The medical service side of the scheme is perhaps still more important. Every insured person is provided with a family doctor of his own choice, whom he may consult at any time without the payment of a fee, or without, as in some continental schemes, first having to obtain the written permission of his insurance society. The insured persons make full use of their facilities to obtain medical advice, and it is well that they should, for though most of the ailments for which they consult their doctors may be unimportant, many are the incipient and insidious signs of serious disease. Medical benefit in thus facilitating the early detection of disease has important preventive aspects, and dental benefit, on which over £2,000,000 are spent annually, is another influence making for the prevention of disease. The scheme successfully passed the ordeal of a critical examination by the Royal Commission on National Health Insurance. The commission found that "medical benefit has proved in practice a successful and most valued factor in the advancement of the health of the nation," and they were satisfied that the scheme had fully justified itself and had on the whole been successful in operation. They concluded that "National Health Insurance has now become a permanent feature in the social life of this country, and should be continued on its present compulsory and contributory basis." The scheme is not free from serious defects. Its extent of medical benefit is limited to a general practitioner service, and it provides no treatment at all for the dependents of the insured persons. In both these respects it compares unfavourably with the continental health insurance schemes, most of which make available for the insured persons and their dependents the full range of modern therapeutics. But few will dispute that it has been a good thing for the country, and those over whom the Minister of Health presided at the birthday gathering on July 17th did well to celebrate the attainment of the majority of British National Health Insurance and to do honour to its father.

"Commercially Minded" or Shackled by Regulations

TRIBUTE was recently paid by the Minister of Health to the way the profession is working the Act, but it cannot be denied that there is dissatisfaction in some quarters with the terms of service. An instance of how the panel doctor is being shackled by regulations was reported last month to the London insurance committee.

> A girl, alone in a flat, injured her ankle, and being in pain she rang up her doctor asking him to come. There is then a discrepancy in the evidence. The girl said she gave her address: the doctor said she did not. As the doctor did not arrive, instead of calling him on the telephone again, she sent for another doctor and complained to the committee. In the meantime the doctor looked up the girl's record card to get her address and drove to the last address on the card, taking someone with him in his car who corroborated all that happened. Here the girl was not known, so, as the doctor said, "I came back home expecting to hear again." Yet for this action he had to appear before the medical service subcommittee to defend a charge of not going to an urgent case when called.

This doctor was in due course acquitted, but little wonder if after such experience he endeavours at least to obtain for himself all his just dues and, in the words of Mr. Macquisten, becomes "commercially minded." Here is another way in which the doctor suffers under the regulations. A patient ceases to be insured; the record card is asked for and sent in. Subsequently he again becomes eligible for medical benefit. He is sent a new medical card with no doctor's name on it, but as he has still the old medical card with his doctor's name on it he does nothing with the new one and thinks he is still on his old doctor's list, whereas he is not on anyone's list. But until the old doctor is called to attend him the doctor is at risk for this patient, often for quite a long period, and is receiving no pay beyond his share of unallocated people which is divided between all doctors every year.

There are of course many duties laid on panel doctors—inspections by regional medical officers, reports on tuberculous cases, reports on referred cases—which do not occur in private practice and may lead to resentment. Perhaps the most flagrant injustice relates to Clause 7 (III) of the terms of service. Under this an insured person can deliberately demand private treatment from a doctor, receive his medicines privately, have them sent to him for any length of time, but if within one month from paying the bill (or receiving an account) he claims that he was insured the insurance committee have power to make the doctor withdraw his account or refund the money paid, allowing him temporary resident payment for the case, about 13*s.* It is stated there is no appeal from the decision on such a case made by the medical benefit subcommittee or a section of it. The doctor is allowed payment for drugs on the tariff scale, but will be out of pocket over such things as containers, which may mount up during a long attendance. There is a feeling that where an amount ordered to be withdrawn or refunded is considerable (say £1) the case should be referred to a tribunal on which are an equal number of laymen and doctors with an independent chairman.

Yet another way in which doctors are had has been discovered by the organising secretary for London. Not very infrequently prescriptions are altered after they have left the doctor's surgery by having additional quantities added—e.g., *x* may be placed in front of ii making 12 ounces instead of 2. His drug account, by these means unfairly increased, may lead to inquiry by the regional medical officer.

CORRESPONDENCE

PEDIGREE-KEEPING

To the Editor of THE LANCET

SIR,—A communication from the correspondent of the *Times* in Berlin, published in the issue for July 31st last, informs us that a State Office for racial affairs, opened under the Nazi régime in Thuringia, offers free advice to those about to marry. The advice tendered is based, among other things, upon data concerning disease and the racial structure of the family. To this end information is sought in respect of all relatives and kinsfolk of the Thuringian man or maid, back to their 32 great great grandparents. And this not only about the descendants of these, but also about husbands and wives of descendants. Thus, there would appear to be involved, as the correspondent says, "the collection of remote information concerning some scores of people for each applicant." Offices for giving advice on marriage had already been available for some years in German-speaking lands when Wagner-Jauregg wrote an article on the subject in the *Wiener Klin. Woch.* (Jan. 2nd, 1931), but the number had by then scarcely increased. To establish advisory offices in advance of an efficiently working, proved scheme for keeping family pedigrees of health and disease, defect and abnormality, upon which advice could be based, appears illogical. It is obvious that advice could now and again be given without such records in some chance instance with glaring recent history of disease. For such a special bureau is scarcely needed. For the rest, long years of pedigree-keeping must pass, and would-be advisers must be trained in their subject before advisory offices can profitably be opened and eugenic marriages made in Thuringia or elsewhere. But if the régime is purposeful and forceful, if mass action is feasible, the principle can be recognised and a sound pedigree-scheme produced and put into operation with that satisfying swiftness that impresses. This would place Thuringia and other regions under the same rulers years ahead of those countries where candles are lit and prayers offered for the souls of these rulers. Every man his pedigree schedule and a uniform schedule for every man.

Can one be in his right mind and believe this feasible, or is the defender of such a thesis of necessity a case for care under compulsion, without the option of the blessed provisions of the Early Mental Treatment Act ? Assuredly, men have been "signed up" for less. Taking this risk, I have been fashioning such a document ; to serve not only the eager nubile, but as a basis for the study of genetics as applied to medicine, and to enable us in time to give rational advice on the chances of inheritance of disease, defect, and abnormality. For this purpose I have taken as a basis the cheaper and less elaborate of two pedigree schedules issued by the Eugenics Society at 6*d.* The other, permanent one, costs about 10*s.* 6*d.* I have adopted from this what seems desirable. These schedules are not intended for the general purpose I have in view, but to encourage people to keep their pedigrees, and more particularly to keep a record of some particular defect in the family in which they may be interested. I have to thank Dr. C. P. Blacker, of the Eugenics Society, for giving me copies of the schedules, which constitute a most helpful basis. Naturally, the consent of the Eugenics Society would be necessary before any use could be made of a modification of them. The one adopted by me deals, briefly, with symbols used in preparing a chart, pedigree reference numbers, the description of an attached specimen pedigree (cataract), general instructions ; and a ruled blank chart is supplied for keeping the pedigree. My purpose is, by modifications and additions to the schedule, to show that a chart can be kept by anyone, which shall indicate by symbols not only the usual points, such as sex, miscarriage, infantile deaths, twins, unknown siblings, but also shall by symbols show whether individuals charted are healthy, diseased, defective, or abnormal, or carriers of disease, &c. ; or that no information about an individual is available. For particular ascendants, relatives by marriage, collaterals, whose ancestry it is desired to record, a separate chart or charts are employed, whereby confusing elaboration is avoided. For each individual on the chart there is an individual case-sheet, with a reference number corresponding to that on the chart. Answers are to be given to appropriate questions on this ; and disease, defect, &c., indicated by the chart symbol is to be specified and described on this. A specimen family pedigree is given, illustrating the symbols, including those for health, disease, and defect (common diseases and defects have been chosen to correspond to these latter). This pedigree chart shows descendants to the generation of the compiler's children and ascendants to the great grand parental generation, space being left for more remote ascendants. The point of durability of material used in making this schedule can probably only be met by admitting that we must be content with such durability as a charge of about 2*s.* will cover. Individuals interested will find means of providing durable covers.

This pedigree is to be kept with the help of the family's medical adviser. I am told that people may object to this "intrusion." I have told myself that many practitioners will need training and experience before they can adequately advise. Then there is the objection to recording certain diseases; there are, it is not surprising, many hypothetical objections. And there are the fearful and faint-hearted, who would "leave it to the State," the Holy Mother Church and Refuge of Socialism. I am all for the State, which has made possible our rate-supported charming retreats for visionaries, unhappily pedigree-less for want of instruction. But in Thuringia it has been left to the eugenically minded Nazi régime, which I conceive as hurling maledictions at those who have wasted time by failing to provide a common pedigree schedule. Meeting my critics armed with hypothetical objections with no less assumption, I shall maintain that "here and now" there are masses of educated people in various strata of society who would show interest in this matter of pedigree-keeping, and would obtain a schedule, if those members of the medical profession who have experience in the subject, banded in this or that appropriate association, would get together, produce a practical schedule, and start a movement, having for its ultimate object the keeping of family pedigrees on the grand scale.

I am, Sir, yours faithfully,

Hove, August 4th, 1933. EDWIN GOODALL.

THE FUTURE OF MEDICAL PRACTICE

To the Editor of THE LANCET

SIR,—I have read with interest Dr. Brock's letter in your issue of July 29th. He has stressed the necessity for the practitioner becoming more capable, and I would like to draw attention to the need for the acquisition of increased facilities for the exercise of his skill. This can be assured by the same methods as are adopted in business enterprises and in hospitals —specialisation, organisation, and coöperation. Specialisation is above all desirable for those branches of medicine and surgery which require particular apparatus—e.g., microscopes, instruments for illuminating or treating areas ordinarily inaccessible (bladder, bronchi, fundus of the eye, ear, and nose). Organisation is necessary to avoid waste of time by providing a clerical staff to keep records and make appointments. Coöperation is advisable that special organs more or less out of reach of direct examination should be treated by those devoting themselves to acquiring the special skill needed. Patients should have access to them in the early and curable stage of disease rather than when secondary changes have developed.

Medical men in private practice have hardly yet given sufficient attention to methods of combining and coöperating to give more efficient service. When they do the standard of treatment among the community as a whole will be raised. The public glimpse the necessity of these things by their preference for going to hospital for treatment of many common ailments. They know the departments of hospitals as well as the hospitals which specialise in the areas in which they feel they suffer. We read frequently of the practice which slips away from the general practitioner. It is not due to want of brains that this occurs, but rather to want of facilities for giving treatment.

No ordinary doctor can stand the expense of providing equipment and accommodation as well as the clerical and nursing assistance to give the various forms of physical treatment—baths, light, electricity, manipulation, &c.—necessary for quick recovery from affections following acute diseases and injuries which are met with in general practice. These could readily be treated early by practitioners combining to establish "centres," "clinics," or "medical houses" where these would be available. The attitude of the profession in many instances is individualist and exclusive, and patients often do not recover as quickly and completely as they might do if the treatment were early and more efficient. We have much to learn from the methods of successful business enterprises.

I am, Sir, yours faithfully,

Devonshire-place, W., August 2nd, 1933. A. R. FRIEL.

To the Editor of THE LANCET

SIR,—Much has been written and is being written on the outlook of medicine in the near future, for everyone can see that the magnificent progress of science is not represented in practice. The medical profession retains its aspirations if served by men as fine in their ideals as were their predecessors, but practical factors militate against the work and the opportunities of too many of those who make of medicine a professional career. It is nothing to be surprised at that many desire a State medical service, nor that a large section of the public hold that the institution of such a service would solve many difficulties.

The medical is the most expensive and scientifically expansive profession for a young man to enter upon, and its excessive nerve strain with heavy expenditure lasts throughout the doctor's career. Sixty years ago a four years' medical curriculum was required to gain a diploma to practise physic, and when this was obtained the portals of instruction automatically closed behind the successful candidate, who then as a rule went out into the world to practise what he had learned during his curriculum; and out in the world he often sold his services for what he could get to obtain such experience as would be forthcoming under such awkward circumstances in an endeavour to compete with others who already held the field against him, and to win the goodwill and confidence of the public in order to secure a livelihood.

This spirit of competition and rivalry for bare subsistence fostered a spirit of emulation and jealousy amongst doctors that, whilst it may have sharpened their wits, occasioned ill-feeling and, it is to be feared, sometimes subversive measures to win over and keep wealthy patients; and, whilst such influences blurred the fineness of the doctor's work, it blighted its conduct and effects amongst the patients, though they were probably ignorant of the undercurrent of ill-will caused through the ever-present struggle for existence. Although acquaintances, a community of doctors could not be honestly friendly in an atmosphere of distrust occasioned by their circumstances; and these things did an injustice to the ideals of the profession, as well as being detrimental to the public interests.

Now much of this is changed. The medical curriculum is lengthened and the manner and methods of instruction are improved, whilst the accumulation of knowledge acquired by the profession itself, as well as by the laity, has made great alterations in the work of doctors as well as in the circumstances of its conduct. Now when a man becomes qualified and registered as a doctor he is called upon to move forward with the times, to continue to study new theories, to practise fresh methods, and, in fact, to continue his curriculum as a medical student all his days, with some provision for instruction now being made for him to do so.

This is all quite right and proper—the health and lives of the people are their most valuable possession, and must command the best service available—but, on the other hand, the men who are expected to fulfil the arduous conditions now necessitated need more detailed consideration than they have so far received. It is not right that a clever and popular physician should be overburdened with duties that may perchance be satisfactorily transferred to a less prominent person; nor that the livelihood of a good and capable man shall lie at the disposal of a fickle and non-discriminating public. It cannot be right for one who has spent all his time and fortune in getting qualified to be driven to his wits' end to provide the necessaries of life, nor forced to envy and begrudge the hard-work earnings of his "opposition practitioner," who in his turn is struggling with force of circumstances and his own difficulties. It is impossible for anyone to do the best he can for others when he is distraught in himself with his own troubles and importunate worries.

Every young man possessed of the requisite strength of mind and body, and the means to take up the study and practice of the stern and relentless medical profession with all its ever-present obligatory and self-sacrificing responsibilities, needs the financial and whole moral support of the people for whose benefit he must willingly and unflinchingly devote his life and attention. This end has evidently been aimed at and partly attained by the introduction of the "National Health Insurance" scheme that has already gone far to put doctors upon a better footing with their poorer patients and medical service more within reach of the poor; but in these days of "progress" this is not enough, nor does it purify the spring of philanthropy (contaminated by competition) sufficiently to meet the call of the times. That call is for a "State medical service" to provide for and carry out in careful detail the vastly increased requirements of modern days.

To do his work properly the doctor of to-day must be relieved of his own financial anxieties and worries, together with much of the responsibility of his professional work to which great anxiety is frequently attached; and at the same time the public must be relieved of the selection of arrangements for the conduct and management of matters they cannot fully comprehend. The doctor's stipend should be secured to him with the duties assigned to him in accordance with his training and capabilities, and in this way—"as on military lines"—an efficient and effective force for public medical service may be supplied to the whole country probably for a smaller sum than is at present paid in petty details of unknown, unrecognised, and often ill-requiting amounts.

I know that the question of a State medical service has been much discussed, and I know also the difficulties inherent in instituting it. Those difficulties, I presume, have been held insuperable, as advocacy of the revolution has ceased. But meantime the difficulties of practice remain, and indeed seem aggravated. Lord Dawson's remarks at Bristol, reported in your columns recently, were apt and opportune. Alterations are made and amendments introduced, often with benefit, but sometimes these only temporise and complicate much that must be finally deleted, in the same way as monetary liabilities deferred eventually compel increased efforts to defray. The "medical tree" is already overweighted by its branches. The centralisation of a supreme supervising authority with radiating powers for control and distribution is called for—a reorganisation of the whole profession, i.e., 'A State medical service."

I am not alone in wishing to have the advantages of a State medical service kept before the profession.

I am, Sir, yours faithfully,

Checeley, Gloucester, August 1st, 1933. J. GOOD.

THE ROYAL SOCIETY DISCUSSION ON "EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS"

To the Editor of THE LANCET

SIR,—Reading Mr. Lockhart-Mummery's letter in to-day's issue of THE LANCET one would infer that the experiments to which he alludes form the exclusive occupation of the Imperial Cancer Research Fund in particular, and that the director of that Fund poses as an autocratic critic on all questions of cancer. The real situation bears no resemblance to this assumption. The latest report of that Fund was regarded in America—where I happened to be on its publication—as being the latest and most trustworthy and suggestive exposition of the cancer problem at that time.

Turning to the question of experiments on birds, animals, and plants—where would be any of the public bodies and lonely workers if these formed no part in the investigations? After all these experiments and observations are clinical records that bear immediately upon the human disease. I do not take the view of Mr. Lockhart-Mummery that there is a tendency on the part of any of these public bodies and lonely workers "for experimentalists to get out of touch with the surgeons and pathologists who are dealing with the disease in human beings." I would be more inclined to take the view that "surgeons and pathologists" are not sufficiently in touch with the experiments and observations upon birds, animals, and plants. They have been of the greatest assistance to me, and Dr. Cuthbert Dukes has also discovered their aid.

All workers, whether connected with public bodies or working as independent units, like myself, have their eyes glued always on the relation between experiments and human disease. Otherwise their work would be deceiving the public that subscribes so liberally to all kinds of funds. Because some of us fail to detect striking allusions in the reports of these funds to our own particular hypotheses does not prove that they are not under the direct scrutiny and sympathetic study of all workers with whom I have come in contact during my travels. They are not disregarded by any worker I have met.

The problem is an international one, and in spite of this fact, we do not know, as Dr. Begg says—"Just how it is that a normal cell is changed into a malignant one."

I am, Sir, yours faithfully,

G. LENTHAL CHEATLE.

Harley-street, W., August 5th, 1933.

LACTIC ACID AS A FACTOR IN RHEUMATISM

To the Editor of THE LANCET

SIR,—I have read Dr. Drury Pennington's letter in your issue of July 29th with great interest, as the problem of lactic acid in association with rheumatic complaints has occupied my close attention during the recent year. It has been possible for me to examine a number of cases of rheumatism undergoing treatment at the Seamen's Hospital, Greenwich, and the Woolwich Red Cross Clinic for Rheumatism. Amongst other biochemical constituents of sweat following vapour-bath treatment, as practised by Dr. Charles Sundell, the percentage of lactic acid present was determined both in rheumatic and non-rheumatic subjects.

My biochemical findings have shown me that there is no abnormal elimination of lactic acid by the skin in rheumatic patients over and above that which is found in normal individuals, thus corroborating the conclusions come to by American observers. The undoubted benefits derived from vapour-bath treatment may well be due to the increased oxidation consequent on the stimulus to the general metabolism, but there is no evidence that elimination of lactic acid by the sweat is the determining factor.

I am, Sir, yours faithfully,

EILEEN A. BOYD.

Devonport Pathological Laboratories, Seamen's Hospital, Greenwich, S.E., August 2nd, 1933.

PROBLEMS OF SPINAL ANÆSTHESIA

To the Editor of THE LANCET

SIR,—A complete agreement with Prof. Pannett with regard to the motive which provokes us to discuss these problems leads me to offer him some criticism of the experiment upon which he forms a basis for rather sweeping conclusions. The cranial dura mater is closely applied to the skull but the spinal dura is not so immediately supported by its bony canal. The brain and its large arteries pulsate in response to the cardiac pulse inside a rigid box and expansion necessitates a compensating expulsion of fluid from the skull—blood by venous channels and cerebro-spinal fluid through the foramen magnum. Contraction similarly requires compensating influx of fluid. There is thus at the foramen magnum an oscillation of cerebro-spinal fluid which gives rise to the spinal pulse, which is projected down the theca and gives a visible pulsation to the tube. This pulse as well as that of respiration is to be seen recorded on the spinal manometer. The increase of pressure is applied uniformly in every direction to the thecal wall.

Prof. Pannett has, I contend, confused cause and effect; the extradural tissue pulsates in response to the pulsation of the theca, for how could the low extradural pressure impose much effect on the higher intradural? In his rubber tube experiment the pulsation is applied laterally in such a way as to cause a deformation of the tube from its original cross-section, a type of change never found in the body, and this tube becomes therefore merely a laboratory mixing machine in which the behaviour of the methylene-blue might have been predicted without any great strain on the imagination. Moreover the tube is straight and horizontal, and has no inclinations corresponding to those in the body, and he offers no evidence that pulsations can drag a heavy fluid up hill or a light one down hill, which is what concerns us in clinical administration. His conclusions therefore appear to be based on faulty laboratory experiment, while everyday experiment in the operating theatre suggests that gravity plays a controlling part in clinical administration.

Prolonged subarachnoid splanchnic block is now easy to obtain by anyone who will take a big syringe and inject an appropriate volume of fluid up the spine, observing the same precautions with regard to dosage and concentration which have been accepted practice in all local infiltration work for many years. The real problem before us is the valuation of the method in relation to other forms and combinations of anæsthesia.

I am, Sir, yours faithfully,

London, W., August 5th, 1933. W. HOWARD JONES.

THE COMPLAINT OF THE FAMILY DOCTOR

To the Editor of THE LANCET

SIR,—In an article entitled The Family Doctor Must Wake Up! which appeared in the *Evening News* of August 1st, Dr. Alfred Cox states that hospital out-patient rooms are being flooded by the patients of "inefficient" doctors and those who treat their panel patients with "indifference." Such an accusation, made by a man who so recently held the responsible post of secretary to the British Medical Association, will carry much weight with the general public; yet there is scarcely a statement of his that cannot be refuted.

His theme is the outcome of a discussion at the recent representative meeting of the B.M.A. at Dublin, when the inroads made upon private practice by hospital contributory schemes were being considered and fears were expressed that, unless some counter-measures were adopted, the general practitioner would, financially, lose heavily. Dr. Cox pooh-poohs the whole idea and cites the profession's survival of the national health insurance scheme, the formation of clinics, welfare centres, and so forth as if to prove that no loss to the general practitioner resulted. Except in the case of health insurance he has undoubtedly lost, and lost heavily. And as to health insurance the capitation fee has steadily declined while the work has as steadily increased.

Now the hospitals are touting for and advertising their contributory schemes. Small wonder that the practitioner is worried by the prospect of a further loss to his income. Dr. Cox tells the practitioner that if he does his work "properly" he will not lose his patients. A public medical service will cater for the needs of the poor. Compare the two offers: that of the hospital contributory scheme and that of a public medical service. The former offers to its subscribers beds, nursing, X ray, out-patient treatment, and laboratory investigations gratis; *and* can and does advertise them. The practitioner can only offer his own good services with a bottle of medicine thrown in. Only an idiot would think the latter the better insurance!

The general practitioner is up against a serious position and certainly does not need the broadcasting of such an article as that of Dr. Cox to help push him down. Practitioners are asking themselves why such an article should have been written at all. The original discussion was one of a "family" affair between doctor and doctor. The public are not usually interested in our pecuniary embarrassments—that has long been evident.

I am, Sir, yours faithfully,

CYRIL SHERRIS, M.B., B.S.

Cheshunt, Herts, August 4th, 1933.

*** In the article to which reference is made Dr. Cox is considering the reasons why hospitals intended for accidents, emergencies, and serious cases are largely frequented by chronic cases and by people suffering from simple ailments. For this state of affairs he blames impartially certain types of hospital, insurance doctor, and insured patient. The hospital which is proud of the growing number of out-patients instead of regarding it as a reflection on organising capacity. The doctor, an undue proportion of whose insured patients are found to be attending as out-patients. The patient who in spite of his "free choice of doctor" never gets properly examined. The passage in the article from which our correspondent quotes runs as follows:

"As for those insured persons who go because they are dissatisfied with the indifference shown to them by and must command the best service available—but, on the other hand, the men who are expected to fulfil the arduous conditions now necessitated need more detailed consideration than they have so far received. It is not right that a clever and popular physician should be overburdened with duties that may perchance be satisfactorily transferred to a less prominent person; nor that the livelihood of a good and capable man shall lie at the disposal of a fickle and non-discriminating public. It cannot be right for one who has spent all his time and fortune in getting qualified to be driven to his wits' end to provide the necessaries of life, nor forced to envy and begrudge the hard-work earnings of his "opposition practitioner," who in his turn is struggling with force of circumstances and his own difficulties. It is impossible for anyone to do the best he can for others when he is distraught in himself with his own troubles and importunate worries.

Every young man possessed of the requisite strength of mind and body, and the means to take up the study and practice of the stern and relentless medical profession with all its ever-present obligatory and self-sacrificing responsibilities, needs the financial and whole moral support of the people for whose benefit he must willingly and unflinchingly devote his life and attention. This end has evidently been aimed at and partly attained by the introduction of the "National Health Insurance" scheme that has already gone far to put doctors upon a better footing with their poorer patients and medical service more within reach of the poor; but in these days of "progress" this is not enough, nor does it purify the spring of philanthropy (contaminated by competition) sufficiently to meet the call of the times. That call is for a "State medical service" to provide for and carry out in careful detail the vastly increased requirements of modern days.

To do his work properly the doctor of to-day must be relieved of his own financial anxieties and worries, together with much of the responsibility of his professional work to which great anxiety is frequently attached; and at the same time the public must be relieved of the selection of arrangements for the conduct and management of matters they cannot fully comprehend. The doctor's stipend should be secured to him with the duties assigned to him in accordance with his training and capabilities, and in this way—"as on military lines"—an efficient and effective force for public medical service may be supplied to the whole country probably for a smaller sum than is at present paid in petty details of unknown, unrecognised, and often ill-requiting amounts.

I know that the question of a State medical service has been much discussed, and I know also the difficulties inherent in instituting it. Those difficulties, I presume, have been held insuperable, as advocacy of the revolution has ceased. But meantime the difficulties of practice remain, and indeed seem aggravated. Lord Dawson's remarks at *Bristol*, reported in your columns recently, were apt and opportune. Alterations are made and amendments introduced, often with benefit, but sometimes these only temporise and complicate much that must be finally deleted, in the same way as monetary liabilities deferred eventually compel increased efforts to defray. The "*medical tree*" is already overweighted by its branches. The centralisation of a supreme supervising authority with radiating powers for control and distribution is called for—a reorganisation of the *whole profession, i.e.*, 'A State medical service."

I am not alone in wishing to have the advantages of a State medical service kept before the profession.

I am, Sir, yours faithfully,

Chaceley, Gloucester, August 1st, 1933. J. GOOD.

THE ROYAL SOCIETY DISCUSSION ON "EXPERIMENTAL PRODUCTION OF MALIGNANT TUMOURS"

To the Editor of THE LANCET

SIR,—Reading Mr. Lockhart-Mummery's letter in to-day's issue of THE LANCET one would infer that the experiments to which he alludes form the exclusive occupation of the Imperial Cancer Research Fund in particular, and that the director of that Fund poses as an autocratic critic on all questions of cancer. The real situation bears no resemblance to this assumption. The latest report of that Fund was regarded in America—where I happened to be on its publication—as being the latest and most trustworthy and suggestive exposition of the cancer problem at that time.

Turning to the question of experiments on birds, animals, and plants—where would be any of the public bodies and lonely workers if these formed no part in the investigations? After all these experiments and observations are clinical records that bear immediately upon the human disease. I do not take the view of Mr. Lockhart-Mummery that there is a tendency on the part of any of these public bodies and lonely workers "for experimentalists to get out of touch with the surgeons and pathologists who are dealing with the disease in human beings." I would be more inclined to take the view that "surgeons and pathologists" are not sufficiently in touch with the experiments and observations upon birds, animals, and plants. They have been of the greatest assistance to me, and Dr. Cuthbert Dukes has also discovered their aid.

All workers, whether connected with public bodies or working as independent units, like myself, have their eyes glued always on the relation between experiments and human disease. Otherwise their work would be deceiving the public that subscribes so liberally to all kinds of funds. Because some of us fail to detect striking allusions in the reports of these funds to our own particular hypotheses does not prove that they are not under the direct scrutiny and sympathetic study of all workers with whom I have come in contact during my travels. They are not disregarded by any worker I have met.

The problem is an international one, and in spite of this fact, we do not know, as Dr. Begg says—"Just how it is that a normal cell is changed into a malignant one."

I am, Sir, yours faithfully,

G. LENTHAL CHEATLE.

Harley-street, W., August 5th, 1933.

LACTIC ACID AS A FACTOR IN RHEUMATISM

To the Editor of THE LANCET

SIR,—I have read Dr. Drury Pennington's letter in your issue of July 29th with great interest, as the problem of lactic acid in association with rheumatic complaints has occupied my close attention during the recent year. It has been possible for me to examine a number of cases of rheumatism undergoing treatment at the Seamen's Hospital, Greenwich, and the Woolwich Red Cross Clinic for Rheumatism. Amongst other biochemical constituents of sweat following vapour-bath treatment, as practised by Dr. Charles Sundell, the percentage of lactic acid present was determined both in rheumatic and non-rheumatic subjects.

My biochemical findings have shown me that there is no abnormal elimination of lactic acid by the skin in rheumatic patients over and above that which is found in normal individuals, thus corroborating the conclusions come to by American observers. The undoubted benefits derived from vapour-bath treatment may well be due to the increased oxidation consequent on the stimulus to the general metabolism, but there is no evidence that elimination of lactic acid by the sweat is the determining factor.

I am, Sir, yours faithfully,

EILEEN A. BOYD.

Devonport Pathological Laboratories, Seamen's Hospital, Greenwich, S.E., August 2nd, 1933.

PROBLEMS OF SPINAL ANÆSTHESIA

To the Editor of THE LANCET

SIR,—A complete agreement with Prof. Pannett with regard to the motive which provokes us to discuss these problems leads me to offer him some criticism of the experiment upon which he forms a basis for rather sweeping conclusions. The cranial dura mater is closely applied to the skull but the spinal dura is not so immediately supported by its bony canal. The brain and its large arteries pulsate in response to the cardiac pulse inside a rigid box and expansion necessitates a compensating expulsion of fluid from the skull—blood by venous channels and cerebro-spinal fluid through the foramen magnum. Contraction similarly requires compensating influx of fluid. There is thus at the foramen magnum an oscillation of cerebro-spinal fluid which gives rise to the spinal pulse, which is projected down the theca and gives a visible pulsation to the tube. This pulse as well as that of respiration is to be seen recorded on the spinal manometer. The increase of pressure is applied uniformly in every direction to the thecal wall.

Prof. Pannett has, I contend, confused cause and effect; *the extradural tissue pulsates in response to the pulsation of the theca, for how could the low extradural pressure impose much effect on the higher intradural?* In his rubber tube experiment the pulsation is applied laterally in such a way as to cause a deformation of the tube from its original cross-section, a type of change never found in the body, and this tube becomes therefore merely a laboratory mixing machine in which the behaviour of the methylene-blue might have been predicted without any great strain on the imagination. Moreover the tube is straight and horizontal, and has no inclinations corresponding to those in the body, and he offers no evidence that pulsations can drag a heavy fluid up hill or a light one down hill, which is what concerns us in clinical administration. His conclusions therefore appear to be based on faulty laboratory experiment, while everyday experiment in the operating theatre suggests that gravity plays a controlling part in clinical administration.

Prolonged subarachnoid splanchnic block is now easy to obtain by anyone who will take a big syringe and inject an appropriate volume of fluid up the spine, observing the same precautions with regard to dosage and concentration which have been accepted practice in all local infiltration work for many years. The real problem before us is the valuation of the method in relation to other forms and combinations of anæsthesia.

I am, Sir, yours faithfully,

London, W., August 5th, 1933. W. HOWARD JONES.

THE COMPLAINT OF THE FAMILY DOCTOR

To the Editor of THE LANCET

SIR,—In an article entitled The Family Doctor Must Wake Up! which appeared in the *Evening News* of August 1st, Dr. Alfred Cox states that hospital out-patient rooms are being flooded by the patients of "inefficient" doctors and those who treat their panel patients with "indifference." Such an accusation, made by a man who so recently held the responsible post of secretary to the British Medical Association, will carry much weight with the general public; yet there is scarcely a statement of his that cannot be refuted.

His theme is the outcome of a discussion at the recent representative meeting of the B.M.A. at Dublin, when the inroads made upon private practice by hospital contributory schemes were being considered and fears were expressed that, unless some counter-measures were adopted, the general practitioner would, financially, lose heavily. Dr. Cox pooh-poohs the whole idea and cites the profession's survival of the national health insurance scheme, the formation of clinics, welfare centres, and so forth as if to prove that no loss to the general practitioner resulted. Except in the case of health insurance he has undoubtedly lost, and lost heavily. And as to health insurance the capitation fee has steadily declined while the work has as steadily increased.

Now the hospitals are touting for and advertising their contributory schemes. Small wonder that the practitioner is worried by the prospect of a further loss to his income. Dr. Cox tells the practitioner that if he does his work "properly" he will not lose his patients. A public medical service will cater for the needs of the poor. Compare the two offers: that of the hospital contributory scheme and that of a public medical service. The former offers to its subscribers beds, nursing, X ray, out-patient treatment, and laboratory investigations *gratis*; *and* can and does advertise them. The practitioner can only offer his own good services with a bottle of medicine thrown in. Only an idiot would think the latter the better insurance!

The general practitioner is up against a serious position and certainly does not need the broadcasting of such an article as that of Dr. Cox to help push him down. Practitioners are asking themselves why such an article should have been written at all. The original discussion was one of a "family" affair between doctor and doctor. The public are not usually interested in our pecuniary embarrassments—that has long been evident.

I am, Sir, yours faithfully,

CYRIL SHERRIS, M.B., B.S.

Cheshunt, Herts, August 4th, 1933.

*** In the article to which reference is made Dr. Cox is considering the reasons why hospitals intended for accidents, emergencies, and serious cases are largely frequented by chronic cases and by people suffering from simple ailments. For this state of affairs he blames impartially certain types of hospital, insurance doctor, and insured patient. The hospital which is proud of the growing number of out-patients instead of regarding it as a reflection on organising capacity. The doctor, an undue proportion of whose insured patients are found to be attending as out-patients. The patient who in spite of his "free choice of doctor" never gets properly examined. The passage in the article from which our correspondent quotes runs as follows:

"As for those insured persons who go because they are dissatisfied with the indifference shown to them by their insurance doctor, the profession has a [illegible]ble—duty. The insurance doctor whose patients in numbe[illegible]pecte[illegible]eding the average are found to be attending as [illegible]tients should be asked to show cause. This could be done by collaboration between the hospital and the panel committee.

"The patients of the *real* doctor, the man who takes his profession seriously, are not the people who flood the out-patient department. And the public must take its share of the blame. I often ask myself whether it was worth all the trouble the B.M.A. took to get 'free choice of doctor' when I hear of people who never get a proper examination from their doctor meekly submitti[illegible] to it instead of getting another man who *is* prepared [illegible] do honest work for his money. *It is a lamentable [illegible] that some of the most inefficient doctors have large p[illegible]ls, and that changes of doctor are comparatively rare.*"

BOARDING-OUT FACILITIES FOR THE LESS AFFLUENT

To the Editor of THE LANCET

SIR,—Both the Central and District Offices of this Society receive a large number of inquiries from members of the medical profession in regard to institutions and other facilities available for the service of their less affluent patients—e.g., convalescent homes, hostels for mothers and infants, training schemes for cripples, boarding-out in the country, clinics and dispensaries, &c.

The fact that we are so frequently consulted leads us to suppose that our services might be of use to other members of the medical profession who, not being aware of our existence, do not enjoy the convenience of the information we can supply. The Society publishes annually a Charities Register and Digest containing on 540 pages the particulars of several thousands of institutions. This is as comprehensive and up to date a record as we are able to make it of the institutions whose services are likely to be required for people in London and the south of England.

As regular readers of your journal, however, we have some notion of the innumerable preoccupations of a practising physician, and realise that he has little or no time to refer to the pages of a book of reference of this kind. He would, we are sure, find it more expeditious to write or telephone to this office, or to the District Office nearest him (Telephone Directory, page 291) stating the information of which he is in need. Our staff are always delighted to reply to such queries, and are, in fact, constantly doing so.

I am, Sir, yours faithfully,

J. C. PRINGLE.

Charity Organisation Society, 296, Vauxhall Bridge-road, S.W., August 4th, 1933.

MONGOLISM IN TWINS

To the Editor of THE LANCET

SIR,—In his account of a case of mongolism in both of twins (THE LANCET, April 15th, p. 802) Dr. P. M. G. Russell seems to me to have reached more definite conclusions than his data warrant. In the first place, were these girls identical twins or were they not? There are several cases in the German and American literature of twins which have had separate fœtal membranes but which appear nevertheless to be identical twins. Yet the proof that his mongolian twins are identical is based mainly on the membranes. The fact that the twins were virtually identical in four characteristics (sex, birth weight, head circumference, and the complex of "mongoloid" characters) strongly suggests that the twins were identical. Under these circumstances the "non-identity" of the twins can hardly be accepted if this is to be considered a crucial case.

The other difficulty is even more serious. Non-identical twins resemble each other to about the same extent as ordinary brothers and sisters. Thus in a family in which part of the children are blue-eyed and part brown-eyed, one twin may have blue eyes and the other brown, just as sibs may differ in eye colour. To argue that because non-identical twins are alike in eye colour, is proof that eye colour is not inherited, would on the face of it be absurd. Furthermore, to say as Dr. Russell does that "bearing in mind the rarity of mongolian idiocy, the chances seem infinitesimally slight that two ova should become simultaneously fertilized out of the large number which ovulate during a woman's child-bearing life and both daughters bear this hypothetical germinal defect," seems confusing and inaccurate. The fœtus results not from an ovum, but from the union of ovum and sperm. If we assume that mongolism is caused by a recessive gene it is necessary that both parents transmit this gene if any of the children are mongolian idiots. If the two parents carry such a recessive defect there is one chance in four that a given child will be a mongolian idiot. If two recessive genes are involved there is one chance in sixty-four that any given child will be a mongolian idiot. Other arrangements of genes are possible and are well known to genetic science which can give various other chances for the appearance of a given characteristic. These chances are small, perhaps, but they are not "infinitesimally slight." If a genetic cause is operative, there is a definite chance that a given characteristic will reappear in two consecutive fertilisations and it is very questionable logic to adduce such an occurrence as conclusive proof of the absence of heredity.

It seems to me that the possibility of a genetic basis for mongolism is strengthened rather than weakened by this case. Whether it is to be accepted as a final proof of either hypothesis is very questionable, but it does emphasise the need for recording every case of mongolism in twins, with as complete data as possible. In this instance detailed records of fingerprint patterns and other characteristics would have added enormously to the value of the report.

I am, Sir, yours faithfully,

ROBERT C. COOK,

Editor, *Journal of Heredity*.

Washington, D.C., July 28th, 1933.

"THE INJURED WORKMAN"

To the Editor of THE LANCET

SIR,—While I greatly appreciate your kindly review last week of my section of "The Injured Workman," I am afraid one rather involved sentence of mine has been misunderstood. In the sentence quoted as suggesting that compensation might be awarded for something other than loss of wage-earning power, the words are: "And secondarily *from* deformity and pain"—"from" not "for." My intention in writing this was to point out that a man might be disabled in the first place because he had lost an eye, thereby losing some of his visual power; secondarily because he was a deformed man and therefore could not be given a job; and thirdly because his eye, when he attempted to use it for any work, although the sight was fairly good, caused him some distress, which made his work very poor. A great many cases such as this, involving corneal injuries, are fought on the grounds mentioned under the heading "secondarily."

I am, Sir, yours faithfully,

Leeds, August 7th, 1933. JOHN FOSTER.

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

NO FEDERAL AID FOR PUBLIC HEALTH

WHILE millions of dollars of federal money are being distributed to the States to aid in highway construction, public works, and the relief of indigency, no federal subventions have been allotted by Congress for the preservation of the public health. On the contrary, the $300,000 which was granted in the last fiscal year to support county units with full-time health officers has been withdrawn, with the result that many of the full-time men are likely to lose their employment. Urgent representations have been made to the administrator in Washington of federal relief. An offer has been extended by him to allow health officers to spend part of their time in the administration of poor relief and to allow them a subsidy for such services. Public health officials regard this as a dangerous proposal. For many years they have sought to educate the public to a conception of preventive medicine that goes beyond medical relief of indigents. To designate health officers as physicians to the poor would undo all these years of educational work and open the door to the acceptance of responsibilities so vast that any constructive public health work would become impossible. It must be realised that in this country there is usually, except in large cities, almost no provision for medical aid to the poor, and any health officer of a rural unit would soon find himself swamped under a load of work that no one man could carry. The difficulty of defining indigency and determining which person is entitled to free care is also very great, and a failure to make proper distinction inevitably leads to strained relations with colleagues in private practice. An appeal is now being made directly to the President himself to set aside some fund for aid to public health work until Congress reconvenes and can act to relieve the emergency.

INTRAVENOUS USE OF BARBITAL COMPOUNDS

The council on pharmacy and chemistry of the American Medical Association has just published a second report on the use of barbital compounds intravenously. In its first report, made public on Dec. 19th, 1931, the council concluded that: "their intravenous use should be limited for the present to conditions in which oral administration is not feasible either because the patient is unconscious, as in cerebral hæmorrhage, eclampsia, or status epilepticus, or because he resists, as in delirium, or because a very prompt action is imperative, as in convulsion from local anæsthesia." The council has refrained from approving products unless their advertisement for intravenous use has been limited to the above conditions. Recently new soluble barbiturates have been developed and the question has been raised as to whether the ruling of the council should be revised. A large number of authorities have been consulted and they agree on the whole, though not unanimously, that the barbiturates should not be used intravenously except under the stated conditions. Dr. George W. Crile, for example, is against intravenous anæsthesia in any form whatsoever on the ground that the anæsthetic is irrecoverable—an objection which might be applied by the way with only somewhat less force to oral or rectal anæsthesia with the same drugs. The council has determined to make no change in its ruling.

PUBLIC HEALTH SERVICES

The Health of a Tourist County

AT a meeting of the Cumberland county council last week a novel reason was given for making the county a healthier place. The vice-chairman of the public health and housing committee remarked that the council wanted to advertise Cumberland to get more tourists; hence it must recognise that the health committee should face in the coming year a big increase in expenditure on the development of health services. The annual report on these services was before the council at this meeting, and in it Dr. Kenneth Fraser, who has succeeded Dr. F. H. Morison as county medical officer, remarked on the definite development of a "health sense" in the county of recent years, particularly desirable in the case of Cumberland where industries which had been the main source of income in the past had almost ceased to exist. Thus the alternative source of income—the development of the county as a holiday and tourist centre—becomes much too valuable to disregard. Cumberland, says Dr. Fraser, was an area with unique advantages; the Roman wall was exceptionally rich in historical interest; there was a large section of the English lakeland within its borders; certain areas such as Silloth and Alston were exceptionally bracing areas for the convalescent or the seeker after health. Therefore he submitted that a high standard of hygiene ought to be a part of the county's stock-in-trade. The tourist or the convalescent had the right to expect at least a pure water-supply, a properly controlled milk-supply, and a generally high standard of sanitation. No doubt over a large part of the county these things were provided, but as the report shows, the vital statistics give cause for anxiety in some directions. While the death-rate from pulmonary tuberculosis in the administrative counties of England has been more or less steadily falling for the past 11 years, the death-rate in Cumberland has shown no corresponding fall. Notifications of non-pulmonary tuberculosis are actually rising. A good deal of the rise, however, Dr. Fraser thought, might be attributed to improvement in the methods of diagnosis and likely to yield to the more intensive supervision of tuberculosis in cattle. And yet under existing conditions he saw no hope of any substantial improvement in the tuberculosis problem as it existed in the county. A high percentage of cases of tubercle came to the knowledge of his department at such a stage in their illness that treatment of any kind was futile, and the attitude of the general public to the infectivity of the disease remained highly unsatisfactory. To give one or two examples out of many available, he cited at least one advanced case of tuberculosis married during the year. In another household an advanced case returned from sanatorium to die, and slept in the same bed with another child up to the time of her death: not surprisingly this child had since developed tubercle. Two tuberculous married persons, both of whom had advanced tubercle, declined to allow their children to be removed from the home to an excellent institution prepared to receive them, and no argument could influence their decision. These examples, he thought, were very disquieting. The housing of tuberculous persons was, so far as he was aware, a matter in which no steps had been taken by any sanitary authority within the county. It was surely unfortunate that in the housing schemes a proportion of the newly built houses had not been set apart for the use of households in which there were tuberculous persons. Dr. Fraser quoted with approval the action of the borough of Walsall in 1931 in providing 50 houses for special cases recommended by the health committee or who were living in very bad conditions. Finally, he referred to the legal aspects involved in the letting of premises previously occupied by tuberculous persons, and to the case tried in the King's Bench Division in June, 1923 (see THE LANCET, 1923, ii., 34). Provision for the segregation of advanced cases in the county was also quite inadequate, and it was clear, he said, that the problem of the provision of beds for advanced cases must be faced at an early date on a scale and in a manner not even contemplated hitherto. These are serious words addressed to a sanitary authority, and they evidently made an impression at the meeting of the council, although several members were inclined to ascribe the increase entirely to the effect in the county of ten years' underfeeding, unemployment, and malnutrition; but more than one member was willing to admit that economies in the future must come from some other source than from the health committee.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 29TH, 1933

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 7 (last week 4); scarlet fever, 2179; diphtheria, 920: enteric fever, 51; acute pneumonia (prima or influenzal), 491; puerperal fever, 26; puerper pyrexia, 98; cerebro-spinal fever, 20; acute poli myelitis, 21; acute polio-encephalitis, 1; encephalit lethargica, 5; continued fever, 1 (Bury St. Edmunds dysentery, 8; ophthalmia neonatorum, 92. No ca of cholera, plague, or typhus fever was notifi during the week.

The number of cases in the Infectious Hospitals of t London County Council on August 1st–2nd was as follow Small-pox, 17 under treatment, 1 under observation (la week 27 and 0 respectively); scarlet fever, 2044; dip theria, 1632; enteric fever, 16; measles, 595; whoopin cough, 380; puerperal fever, 26 mothers (plus 8 babies encephalitis lethargica, 256; poliomyelitis, 2; "oth diseases," 201. At St. Margaret's Hospital were we 17 babies (plus 5 mothers) with ophthalmia neonatoru

Deaths.—In 118 great towns, including Londo there was no death from small-pox, 2 (1) from ente fever, 19 (4) from measles, 6 (1) from scarlet fev 18 (9) from whooping-cough, 29 (8) from diphtheri 27 (5) from diarrhœa and enteritis under two yea and 10 (3) from influenza. The figures in parenthes are those for London itself.

Birmingham reported the only death from enteric fev outside London. Measles was fatal in 3 cases at Liverpo 2 each at Bolton, Wallasey, West Hartlepool, a Plymouth. Four deaths from diphtheria occurred Manchester, 2 each at Brentford and Chiswick, Liverpo Sheffield, and Merthyr Tydfil. Of the deaths from di rhœa outside London, 5 were reported from Liverpo 3 from Manchester.

The number of stillbirths notified during the we was 242 (corresponding to a rate of 39 per 1000 tot births), including 33 in London.

OBITUARY

SIR JOSEPH VERCO, M.D. Lond., F.R.C.S. Eng.

CONSULTING PHYSICIAN TO THE ADELAIDE HOSPITAL

ON July 30th there died in Adelaide Sir Joseph Verco, one of the best-known physicians in Australia. He had reached the age of 82.

Joseph Cooke Verco was born in Fullarton, South Australia, in 1851, and educated at Young's Educational Institution and St. Peter's College, Adelaide. He came to England for a medical training, and entered in 1870 St. Bartholomew's Hospital, where he had a distinguished career. He qualified in 1874 as M.R.C.S., and graduated with first-class honours and a gold medal as M.B. Lond. in the following year, taking also the diploma of L.R.C.P. While serving as house physician at St. Bartholomew's in 1876 he proceeded to the M.D. Lond., where he was again a gold medallist. In 1877 he took the F.R.C.S. Eng. and the B.S. Lond., when he was gold medallist for a third time. Undoubtedly Verco had a life in England of professional success open to him. But he was loyal to his native land.

Verco returned to Adelaide in 1878 with remarkable testimonials and, in spite of his comparative youth, obtained at once a considerable practice and made a sound reputation. He was appointed physician to the Adelaide Hospital and the Adelaide Children's Hospital and lecturer on medicine in the University of Adelaide, and soon came to be regarded as one of the leading medical authorities in the Commonwealth. In 1919 he was knighted and shortly afterwards was selected by the Council of the Adelaide University to be its representative at the 800th anniversary of St. Bartholomew's Hospital, on which occasion he paid his first visit to England since his return to Australia. He retired from practice some ten years ago, but always preserved his interest in medicine.

WILLIAM ALEXANDER SMITH, M.B. Oxf., M.R.C.S. Eng., F.C.S.

WE regret to announce the death of Dr. Willia Alexander Smith, which occurred in Cambridge August 3rd at Glebe-road, Cambridge. He was highly accomplished man and an unusual blend the practical doctor and the savant. The elde son of the late Mr. William Smith, a Bristol surgeo he was born in 1852, educated at Clifton and Oxford where he obtained first-class honours in t Natural Tripos in 1875. He completed his medic training at St. Mary's Hospital and graduated M. Oxford in 1880, taking the M.R.C.S. at the same tim Shortly afterwards he married May, daughter Mr. Mark Whitwill, and went into general practi in Essex at the village of Newport near Saffr Walden. He was immediately placed upon t staff of the Saffron Walden Hospital, and so became known to the neighbourhood as a sou practitioner on all three sides of his calling, while h application to the literature of science in general a philosophy acquired for him a well-deserved reputati as a learned man. He practised in Newport for years, leaving in 1908, when he retired from practi and went to live at Clifton. There during the w he did excellent local service as a medical referee o the Bristol War Pensions Committee. Two yea ago his health began to fail, and he removed Cambridge, where he had relatives, and where he foun congenial society and opportunities of pursuing t literary studies to which he was devoted.

Dr. J. A. Browne, who succeeded Dr. Smith in practi at Newport, has sent us a tribute to his friend fro which we quote the following: "In him Oxfo had developed a scholar and a gentleman of her be type, and such he remained to the end. Tall, rather gaunt, with piercing, deep-set eyes, and old-fashioned military moustache, he had a striking and commanding presence more like a General of Infantry than a country doctor. But such he was and well content to be so, though his qualities would have fitted him to admirably fill a professorial chair. His kindliness, his courtesy, his conscientiousness, his outstanding ability and the humility which goes with great knowledge combined to make him esteemed alike by his patients and by a wide circle of friends. It would be difficult indeed to find a man more beloved and respected. There was a transparent sincerity and simplicity about him combined with a kindly humour and a shrewd judgment of men and things that made up a singularly delightful personality. An omnivorous reader, he absorbed and assimilated a vast amount of learning, so that there was scarcely a subject on which he could not make an illuminating remark or raise a suggestive question. At one time he used to go his rounds on horseback reading a book as he rode, and he and the horse have been seen by the roadside each taking a noonday 'bait' while Smith read poetry aloud between mouthfuls! His personal habits were of the simplest though he was extremely hospitable, and distinguished men were glad to sit at his table to enjoy the charms of his conversation. Professionally, Smith was a careful and scientific physician and an excellent surgeon. He keenly kept himself abreast of the advancing body of medical knowledge. His opinion was valued by his colleagues and commanded respect, while it was always delivered with a characteristic modesty and hesitancy."

MEDICAL NEWS

University of Oxford

At two recent congregations the following degrees were conferred :—

M.Ch.—A. E. Porritt.

B.M.—H. J. Barrie, J. H. B. Beal, G. E. M. Benson, Alan Carling, C. C. Cobb, Eric Fowler, I. H. Gosset, Thomas Hardy, D. A. Jennings, J. E. Lewis, J. E. Morley, H. R. Bathurst Norman, P. E. F. Routley, René Thomas, and Clifford Wilson.

Royal Colleges of Physicians and Surgeons

At the final examination of the conjoint board held from July 3rd to 28th, the following candidates were approved in the subjects indicated, but are not yet eligible for the diplomas of the Colleges :—

Pathology.—S. R. Ali, Bombay and King's Coll. ; A. G. V. Aldridge, Camb. and Birmingham ; R. A. Andrews, Camb. and Guy's ; M. Appelman, St. Bart.'s ; J. C. Baillie, King's Coll. ; Dorothy E. Barber, Bristol ; Louie M. M. Beadnell, Univ. Coll. ; Mary A. M. Bigby, Royal Free ; E. W. Bintcliffe, St. Bart.'s ; E. A. Bisson, London ; R. H. Blazeby, Guy's ; P. R. Boucher, St. Mary's ; A. G. W. Branch, Bristol ; A. S. Bullough, Manchester ; J. A. C. Burridge, King's Coll. ; Ruth M. Campbell, Royal Free ; A. M. R. Cann, Middlesex ; W. A. Carey, Camb. and King's Coll. ; R. Carpenter, H. G. Cereseto, and J. A. Chivers, St. Bart.'s ; K. H. Clark, St. Mary's ; R. M. Clarke, Middlesex ; C. W. J. Claydon, King's Coll. ; P. Crann and J. H. Crawford, Leeds ; P. E. Cresswell, Oxon and Guy's ; Enid G. M. Cummings, Royal Free ; E. A. Danino, St. Bart.'s ; J. R. Dansie, King's Coll. ; D. H. Davies, Camb. and Middx. ; D. R. Davies and Enid S. Davies, Univ. Coll. ; H. S. Davis, amb. and Charing Cross ; G. De Lacey, London ; Rosalind M. S. Derham, Bristol ; D. G. F. Edward, St. Bart.'s ; A. G. Edwards, Guy's ; L. J. L. Edwards, St. Bart.'s ; C. E. Elliott, Camb. and St. George's ; H. L. Ellis, Middx. ; M. Epstein, St. Bart.'s ; Constance E. Field, Univ. Coll. ; J. F. A. Forster, Guy's ; J. C. Garland, Middx. ; Mary I. Gibson, Royal Free ; S. S. B. Gilder, London ; A. E. Ginn, Guy's ; R. I. N. Greaves, Camb. and St. Mary's ; J. Greenhalgh, Guy's ; G. D. Hadley, Camb. and Middx. ; Susanna M. Halliday, Edin. ; W. H. Hamilton, Guy's ; Beatrice J. Haram, Royal Free ; G. D. Harthan, Manchester ; A. E. M. Hartley, Camb. and St. Mary's ; J. N. Heales, Bristol ; J. C. Henry, Guy's ; R. Hill, St. Mary's ; R. D. Holloway, Camb. and St. George's ; Elizabeth M. James, Royal Free ; B. S. Jones, Camb. and London ; F. A. Jones, St. Bart.'s ; I. D. Jones, Middx. ; A. C. Kanaar, St. Bart.'s ; J. R. Kennedy, Manchester ; M. A. Khan, West London ; A. Kiloh, King's Coll. ; J. R. Kingdon, St. Bart.'s ; Gwenline D. Knight and Mildred G. Latham, Royal Free ; K. A. tter, St. Bart.'s ; A. P. R. Lewis, Westminster ; L. F. E. wis, Manchester ; Phyllis S. Lockie, Univ. Coll. ; K. Lumsden, mb. and St. Bart.'s ; J. McArthur, Guy's ; L. C. Martin, mb. and Middx. ; A. G. C. Mason and S. P. Mason, Middx. ; K. A. Mathews, Bristol ; S. A. Mian, Punjab and West London ; S. G. Mohler, St. Mary's ; R. H. Moodie, Bristol ; J. N. Morris, Univ. Coll. ; C. J. B. Murray, Middx. ; Frances C. Naish, Camb. and Royal Free ; P. H. Newman, Middx. ; P. B. L. Nicholas, London ; Margaret M. O'Connor, Royal Free ; A. Orlek, St. Bart.'s ; N. C. Oswald, Camb. and Charing Cross ; H. C. Palin, Manchester ; M. L. Pan, St. Bart.'s ; C. G. Parsons, Birmingham ; J. E. G. Pearson, Oxon and Middx. ; Margaret R. Price, Royal Free ; L. Rabinovitch, Leeds ; S. Rameshwer, Lucknow and Middx. ; C. Reburn, St. Mary's ; J. D. Richardson, King's Coll. ; M. S. Richmond, Leeds ; M. Ripka, London ; H. Sandifer, Middx. ; B. J. Sanger, London ; I. C. Sarwal, St. Bart.'s ; P. R. Saville, London ; N. H. Seaton, Univ. Coll. ; A. I. Seidman, St. Bart.'s ; A. I. Shaw, Univ. Coll. ; A. L. L. Silver, Oxon and London ; H. G. Silvester, Univ. Coll. ; G. E T. Solen, St. Bart.'s ; J. Starkie, Manchester ; K. F. Stephens, St. Bart.'s ; D. L. M. Stewart, King's Coll. ; A. J. Stolow, Charing Cross ; S. Sunkavally, Madras and London ; Alice C. N. Swanston, Royal Free ; Elisabeth J. M. Thomas, Univ. Coll. ; H. W. Thomas, London ; R. E. Thomas, Univ. Coll. ; A. S. Till, Camb. and Middx. ; L. N. Trethowan, Guy's ; Beryl Twyman, Univ. Coll. ; T. P. Ward, Camb. and St. Thomas's ; M. Williams, Camb. and St. George's.

Medicine.—S. R. Ali, Bombay and King's Coll. ; J. B. Andosca, King's Coll. ; M. Appelman, St. Bart.'s ; N. Asbell, Westminster ; A. J. N. X. Babapulle, Ceylon and King's Coll. ; Bridget M. Barcroft, Camb. and Royal Free ; Mary A. M. Bigby, Royal Free ; Muriel Boycott, Univ. Coll. ; G. C. Brown, Camb. and St. Mary's ; R. E. Browne, King's Coll. ; A. G. Butters, St. Bart.'s ; K. L. Buxton, Camb. and St. Thos. ; J. A. Chivers, St. Bart.'s ; J. D. Cruickshank, Birmingham ; Enid G. M. Cummings, Royal Free ; D. O. Davies, St. Bart.'s ; E. Davis, Manchester ; F. H. D'Souza, Guy's ; T. H. Dias, Ceylon and King's Coll. ; W. L. Dove, Liverpool ; E. Dunsby, Leeds ; P. Emmerson, Durham ; G. H. D. Evans, Cardiff ; S. Y. Feggetter, Durham ; C. J. Gavey, London ; C. A. George, St. Bart.'s ; S. W. Gillman, Univ. Coll. ; R. M. Haines, Westminster ; S. A. Hasan, London ; Winifred M. Hill, Bristol ; M. H. Hosny, Birmingham ; A. V. House, Bristol ; Elizabeth M. James, Royal Free ; J. W. James, Univ. Coll. ; E. H. Johnson, Leeds ; W. L. Kerr, King's Coll. ; L. F. E. Lewis, Manchester ; P. C. Matthew, Camb. and Univ. Coll. ; N. H. Merchant, Univ. Coll. ; S. A. Mian, Punjab and West London ; Barbara G. Morton, Royal Free ; A. A. K. Naqsh-Bandi, Univ. Coll. ; P. B. L. Nicholas, London ; W. S. Nutt, Camb. and King's Coll. ; Margaret M. O'Connor, Royal Free ; A. Orlek and M. L. Pan, St. Bart.'s ; S. A. Razvi, Birmingham ; A. J. Rouse, St. Bart.'s ; M. F. P. Ryan, King's Coll. ; G. R. Sedleigh-Denfield, St. Bart.'s ; R. H. Shah, Manchester ; A. J. Stolow, Charing Cross ; W. P. M. Telfer, St. Bart.'s ; E. Vernon, and C S. Walker, Manchester ; Sarah C. B. Walker, Royal Free ; J. H. Walters, Camb. and King's Coll. ; I. Zieve, Guy's.

Surgery.—A. K. Acharya, Calcutta and West London ; S. H. Alavi, St. Thomas's ; T. G. Armstrong, Camb. and London ; H. H. Atkinson, Univ. Coll. ; W. R. Billington, Camb. and Birmingham ; P. R. Boucher, St. Mary's ; J. A. Brocklebank, Guy's ; J. C. H. Browne, Middx. ; F. B. Champion, Guy's ; D. R. Davies, Univ. Coll. ; E. Davis, Manchester ; G. V. W. Doherty, Guy's ; P. J. England, Cardiff ; S. Y. Feggetter, Durham ; T. Fitt, Camb. and St. Thomas's ; Mary I. Gibson, Royal Free ; J. G. A. Gilruth, Camb. and Univ. Coll. ; B. S. Grant, London ; C. L. Greening, Durham ; A. H. Hall, Univ. Coll. ; Susanna M. Halliday, Edinburgh ; R. S. Handley, Middx. ; R. R. Henderson, St. Thomas's ; G. T. Hindley, Camb. and St. Bart.'s ; K. Hooper, Guy's ; A. C. L. Houlton, Camb. and St. Bart.'s ; A. V. House, Bristol ; N. M. Jacoby, Guy's ; Maisie F. James, Royal Free ; H. W. E. Jones, St. Thomas's ; J. B. Jordaan, Guy's ; R. Judson and A. R. Kennedy, Manchester ; Alice M. Kenny, West London ; R. L. Kerr, Camb. and St. Mary's ; Phyllis M. Kerridge, Univ. Coll. ; Alfreda W. Krichauff, Adelaide ; J. Lees, Camb. and St. Thomas's ; W. L. Lister, St. Mary's ; Gwladys R. Llewelyn, Bristol ; Phyllis S. Lockie, Univ. Coll. ; O. Lyth, Guy's, W. M. Macleod, St. Thomas's ; Bertha Marston, Birmingham ; K. W. Martin, St. Bart.'s ; W. N. M. Mason, Liverpool ; J. E. Morrish, St. Mary's ; G. A. Myers, New Zealand ; Frances C. Naish, Camb. and Royal Free ; R. Nightingale, Manchester ; D. G. Oehlers, London ; Doris E. Oxford, Royal Free ; R. S. Pachnanda, King's Coll. ; B. H. Page, Camb. and London ; R. S. Pepperdine, Manchester ; J. Phillips, Univ. Coll. ; E. G. Pyne, Camb. and Charing Cross ; Florence C. Read, Manchester ; V. B. Reckitt and J. E. Rowlands, Guy's ; D. Saklatvala and E. Shipman, Univ. Coll. ; J. Smart, Camb. and St. Bart.'s ; O. C. Smith, Univ. Coll. ; M. S. Spink, Camb. and Guy's ; A. B. Stenhouse, Oxon and St. Thomas's ; W. J. Stokes, London ; K. R. Tattersall and S. J. L. Taylor, St. Thomas's ; Elisabeth J. M. Thomas, Univ. Coll. ; Elizabeth D. Thompson, Camb. and Leeds ; S. M. Thompson, Leeds ; D. M. Thomson, St. Bart.'s ; G. L. B. Thurston, Guy's ; Lilian E. Tracey, Royal Free ; G. R. Usmar, Sheffield ; Winifred J. Wadge, Univ. Coll. ; S. H. Wass, Guy's ; W. F. Walton, Camb. and St. Thomas's ; J. T. Watkins, Cardiff ; F. E. Wheeler, St. Bart.'s ; M. E. Wigfield, St. Thomas's ; O. H. M. Woodbridge, Guy's ; A. R. C. Young, St. Bart.'s.

Midwifery.—A. R. Agati, St. Thomas's ; D. E. W. Anderson, London ; W. G. R. Ashley-Emile, Middlesex ; K. C. Bailey, St. Thomas's ; Dorothy E. Barber, Bristol ; J. E. Barker, St. Bart.'s ; H. H. Bayley, Camb. and King's Coll. ; R. H. R. Belsey and T. A. Best, St. Thomas's ; I. S. Bhalla, Univ. Coll. ;

C. J. F. Blumenthal, Guy's; I. N. Blusger, St. Bart.'s; L. C. Bousfield, Middlesex; Helen M. Bower-Alcock, King's Coll.; P. G. Burgess, Oxon and Manch.; A. E. Burjor[illegible], Durham; E. M. Buzzard, Oxon and St. Thomas's; I. Byer[illegible] Bart.'s; A. M. R. Cann, Middlesex; C. M. Carlyle-Gall, St. Thomas's; A. M. Chapnick, Westminster; R. M. Clarke, Middlesex; C. D. Clements, Univ. Coll.; P. Crann, Leeds; A. N. F. Critchley, St. George's; F. Croft, St. Bart.'s; J. H. J. Crosse, Camb. and St. Bart.'s; F. Crowther, Guy's; Enid G. M. Cummings, Royal Free; R. S. Dale, St. Mary's; M. C. Damkenerit, Camb. and St. Thomas's; D. W. Davies, Middlesex; G. de Lacey, London; A. R. O. Denton, Guy's; Rosalind M. S. Derham, Bristol; N. J. Dias, D. G. F. Edward, and L. J. L. Edwards, St. Bart.'s; C. E. Elliott, Camb. and St. George's; H. D. Fairman, London; Constance E. Field, Univ. Coll.; W. T. J. Fowler, Guy's; J. A. C. Franklin, St. Thomas's; J. French, St. Bart.'s; J. C. Garland, Middlesex; H. J. Gaudin, Otago; Mary I. Gibson, Royal Free; S. S. B. Gilder, London; R. I. N. Greaves, Camb. and St. Mary's; S. Grodd, Cape and St. Mary's; J. T. Hallett, Camb. and St. Thomas's; L. D. Harris, St. Mary's; A. E. M. Hartley, Camb. and St. Mary's; J. N. Heales, Bristol; D. F. Heath, Birmingham and Durham; F. S. M. Heggs and R. R. Henderson, St. Thomas's; R. Hill, St. Mary's; J. Holme, Manchester; H. G. Howitt, London; R. S. Illingworth, Leeds; Maisie F. James, Royal Free; J. E. Jameson, St. Thomas's; F. J. G. Jefferiss, St. Mary's; I. H. Jenkins, St. Thomas's; J. F. E. Johnson, Manchester; B. S. Jones, Camb. and London; E. J. Jones, Cardiff and Middlesex; E. G. Jones, St. Bart.'s; I. R. Jones, Cardiff; J. E. V. Jones and L. E. Jones, St. Thomas's; W. M. P. Jones, Cardiff; R. Juc[illegible] A. C. Kanaar, St. Bart.'s; L. M. Kelly, [illegible] M. Kerridge, Univ. Coll.; M. B. Khan, [illegible] a, St. Bart.'s; J. W. J. Knowles, St. Thomas's, [illegible] uff, Adelaide and West London; J. V. Laverick, St. Bart.'s; J. H. Lawrence, Leeds; T. Levitt, Middlesex; A. P. R. Lewis, Westminster; Phyllis S. Lockie, Univ. Coll.; R. Lyons, St. Bart.'s; W. D. F. Lytle, St. Thomas's; J. B. H. McArthur, Guy's; G. S. Malval, Durham; J. W. Mansie, Guy's; E. H. Markby, Leeds; J. S. Marr, Aberdeen and London; K. W. Martin, Camb. and St. Bart.'s; J. D. Martin-Jones, St. Bart.'s; J. Mason and S. P. Mason Middlesex; G. A. Myers, New Zealand; W. S. Nutt, Camb. and King's Coll.; Ivy E. Oliver, Royal Free; J. F. O'Malley, Guy's; G. R. C. Palmer, St. Thomas's; M. L. Pan, Calcutta and St. Bart.'s; H. F. Patrick, St. Thomas's; J. E. G. Pearson, Oxon and Middlesex; R. S. Pepperdine, Manchester; D. S. Piper, Guy's; G. D. Pirrie, King's Coll.; G. T. Pitts, St. Thomas's; J. D. Powell, Camb. and St. Bart.'s; C. H. G. Price, Bristol; Margaret R. Price and Silvia W. Pyddoke, Royal Free; S. Ramgoolam, Univ. Coll.; T. R. F. Raw, Guy's; D. C. Reavell, St. Bart.'s; G. W. D. Reeves and J. W. Rhys, Guy's; E. A. Richards, St. Thomas's; H. D. Robinson, Guy's; A. T. Roden, St. Bart.'s; K. B. Rogers, St. Mary's; Helen E. Rogerson, Manchester; Picotee E. Rose-Innes, Royal Free; Ruth A. Rushton, Camb. and Univ. Coll.; H. S. K. Sainsbury and B. J. Sanger, London; I. C. Sarwal, St. Bart.'s; R. S. F. Schilling, St. Thomas's; B. Selwyn, St. Bart.'s; A. I. Shaw, Univ. Coll.; D. J. Sheehan, St. Bart.'s; H. J. Sherren, Camb. and St. Thomas's; E. Shipman, Univ. Coll.; F. J. C. Smith, Camb. and London; G. G. Smith, St. Thomas's; L. I. Sobiya and R. L. Soper, Guy's; K. F. Stephens, St. Bart.'s; A. J. Stolow, Charing Cross; S. Sunkavally, Madras and London; J. S. F. Sutton, Guy's; R. E. Thomas, Univ. Coll.; Elizabeth D. Thompson and S. M. Thompson, Camb. and Leeds; G. C. Tooth, St. Bart.'s; Lilian E. Tracey, Royal Free; Beryl Twyman, Univ. Coll.; E. Vernon, Manchester; Elsie E. Vincent, Royal Free; R. S. Vine, Guy's; Winifred J. Wadge, Univ. Coll.; C. S. Walker, Manchester; Sarah C. B. Walker, Royal Free; T. E. M. Wardill, St. Bart.'s; J. T. Watkins, Cardiff; C. R. H. Weekes, Camb. and St. Bart.'s; E. T. Weekley, Camb. and St. Thomas's; P. A. Wilkinson, Guy's; G. Williams, St. Mary's; M. W. Williams, Univ. Coll.; and B. L. E. Wong and K. H. Wright, Guy's.

Royal College of Physicians of London

On August 3rd licences to practise were conferred upon the following 25 candidates who have completed the final examination of the conjoint board. These candidates had not completed their examination in time for the meeting of the comitia on July 27th:—

G. E. M. Benson, Oxford and St. Thomas's; C. G. Bree, Univ. Coll.; N. Chakravarty, Calcutta and St. Bart.'s; J. J. Chatterton, Bengal and St. Mary's; A. Das, Calcutta and Middlesex; Helen E. Dimsdale, Camb. and Univ. Coll.; R. G. Fear, St. Bart.'s; E. C. Fountaine, Camb. and St. Bart.'s; D. L. Fromow, London; Pearl M. Heirshberg, Royal Free and West London; C. E. W. Hoar, Westminster; J. R. Hughes, Cardiff and [illegible]; [illegible] Jackson, St. Bart.'s; W. W. Jolly, Adelai[illegible] H. Kessler, King's Coll.; G. D. Lehr[illegible] M. Littledale, Middlesex; J. A. S. Mar[illegible]; T. Miles, St. Thomas's; R. Ram, Lahore and West London; M. Richmond, London; M. A. Rugg-Gunn, Camb. and St. George's; P. Simon, Birmingham and Cardiff; P. G. Stainton, Guy's; and C. H. Yeoh, Oxford and St. Thomas's.

Royal College of Surgeons of England

An ordinary meeting of the council was held on August 3rd, with Sir Holburt Waring, the president, in the chair.

Mr. E. B. Dowsett and Mr. A. T. Pitts were re-elected members of the board of examiners in dental surgery, and Mr. R. Davies-Colley was elected an examiner in pathology. The fourth Macloghlin scholars per annum for medical students was award Philip Powell, of Monmouth School.

Diplomas of membership were granted tc 143 candidates whose names were given in c (p. 331) as recipients of the L.R.C.P. (with the P. N. Cutner), and also on the 25 new licen names will be found under the heading of Roy Physicians of London.

University of London

Sir Edwin Cooper Perry, M.D., has been ap Crown member of the university court for a years.

At a meeting of the senate on July 19th professor of helminthology, conferred on Dr. in 1919, was changed to William Julien Courta of helminthology.

The degree of Ph.D. in bacteriology was M. A. H. Gohar (Lister Institute), and the deg in pathology on P. R. Rao (St. Bart.'s Hosp

Among recipients of grants under the The Hughes medical research fund and the Beave are Dr. Donald Hunter, for special assistance with his study of the relationship of disor poiesis to bone disease (at the London H Prof. M. F. Lucas Keene for assistance in res *development of the brain-stem in the huma* infant, which is an extension of an earlier of myelination (London School of Medicine

The senate invites applications for th readership in pharmaceutics, tenable at the C Pharmaceutical Society, and also for the W Mickle fellowship, which is awarded to the London University who, being resident in in the opinion of the senate done most to adv art or science within the preceding five yea particulars may be had from the academic reg University.

The Semon lecture for 1933 will be given by Dr. H. Burger, professor of otolary Amsterdam, his subject being the so-calle paralyses of the larynx and pharynx (mul nerve palsy). Mr. C. L. Burt, professor of p the University, will give the Heath Clark lec normal and subnormal mind, on Oct. 18th a Nov. 1st, 8th, and 15th.

Hospital Staff and a Contributory Schem

The honorary medical staff of the Nor Hospital, Barrow-in-Furness, recently asked to pay to the medical staff fund 1 per cent. subscribed to the hospital's contributory s staff considered that 20 per cent. would be reasonable figure," but in order to secure t and "not unmindful of the national and lo conditions," were willing to accept a nomina The council has refused to make any such pay the whole question is dealt with nationally. quence of this refusal the hon. medical st that its services would be withdrawn after Dr. Lorton Wilson, stating the point the staff in a published letter, wrote a "When the hospitals provided service for of the community—the poor—the medical p no complaint . . . indeed, it gave its ser and freely. But now that hospitals offer service to a wider class, embracing four-f population, the medical profession can no l this as a work of charity, but must, if only preservation, put forward its claim for just recognition of its services. Those who can a should pay nothing, either to hospital or to dc who can afford private fees should pay the contributory scheme is an organisation not but of the provident, who wisely obtain by cover that they would find difficult to obt In Barrow-in-Furness the contributor who doe charity is forced by the attitude of the auth North Lonsdale Hospital to appear as an obj in that under existing arrangements skilled surgical treatment must be given free, althou is made towards hospital expenses."

ounci of the hospital issued a long reply (*Barrow* n, J y 15th) pointing out that patients had been on a contributory basis since the hospital in 1870, and that the staff received a proportion of tenan charges on certain types of case. They gave that unless the staff's demands were withdrawn by 0th applications would be invited for a resident n and a consultant. At this stage a round-table nce was called by the Mayor of Barrow, and the es of the two parties eventually agreed on a basis lement. At the beginning of this week, however, plete agreement had been reached.

almic Treatment

People's League of Health has passed a resolution ending to public attention the scheme of the National almic Treatment Board, "under which persons d under the National Health Insurance Acts, their dents, and other persons of like economic status, btain for a small and inclusive fee advice and treatment for visual or ocular disorders from a qualified medical itioner, with spectacles when these are required nsed by an expert optician." The address of the d is 1, High-street, London, W.1.

ension of Harlow Wood Orthopædic Hospital

nce this Nottinghamshire institution was opened in it has treated 936 patients. A new ward block, ing three altogether, has recently been opened by Samuel Brown, on behalf of the Ollerton Miners' and Accident Club, representing the miners of the ict. The new building has accommodation for 40 beds.

ation of Chemical Publications

order to coördinate the work of national institutions ged in classifying and rendering accessible the publica- of chemical investigators, the International Office of istry was established in 1932 with headquarters in s. Its first act was the summoning of a conference erts, and these have recommended that the three ical tasks of the office should be: (1) to make ible to all interested persons the documents already ulated in the various centres, depôts, and collec- ; (2) to guide the course of chemical documentation a way as to facilitate registration, filing, and ; (3) to ensure coördination between the docu- ation of chemistry and that of other branches of e. The address of the Office is 49, rue des Mathurins, VIIIe.

Appointments

NNOX, W. D., M.B., Ch.B. Edin., has been appointed dical Referee under the Workmen's Compensation Act, Portree Sheriff Court District (Sheriffdom of erness, Elgin and Nairn).

Vacancies

further information refer to the advertisement columns

Royal College of Medicine.—Six Professorships.
Carnarvonshire and Anglesey Infirmary.—Jun. H.S. £150.
Hospital.—H.S. At rate of £200.
Mater Infirmorum Hospital.—Radiologist.
Queen's University.—John Dunville Research Fellowship Experimental Pathology. £350–£500.
General Hospital.—Sen. H.S. £150. Also second H.P., and Cas. O. Each at rate of £100.
Infirmary.—Res. M.O.'s. Each £300.
Hospital, Wandsworth Common, S.W.—H.P. At of £120.
General Hospital.—H.P., 2 H.S.'s, and Cas. O. Each at of £150.
Municipal General Hospital, St. Luke's.—H.P.'s and 's. Each at rate of £150.
Essex, High Wood Hospital.—H.P. At rate of £80.
General Hospital.—H.P. At rate of £80.
Hospital.—Asst. H.P. At rate of £175.
Cumberland Infirmary.—H.S. At rate of £175. Also P., Second H.S., and H.S. to Spec. Depts. Each at rate £155.
Cheshire.—Asst. M.O. £350.
Maternity Hospital, City-road, E.C.—Asst. Res. At rate of £80.
C.C.—Asst. Maternity and Child Welfare £500.
Royal Infirmary.—H.P. Also Two H.S.'s. Each at £175.
Durham County Mental Hospital.—Asst. M.O. £350.
Evelina Hospital for Sick Children, Southwark, S.E.—H.S. At rate of £120.
Exeter City.—Deputy M.O.H. and Asst. Tuber. O. £600.
Great Yarmouth General Hospital.—H.S. £140.
Ilford Borough.—Asst. School Dental Surgeon. £450.
Ilford, King George Hospital—H.S. £100.
Leeds General Infirmary.—Hon. Ophth. Surgeon.
Liverpool Royal Southern Hospital.—Orthopædic H.S. and M.O. to Special Depts. and Res. Anæsthetist. Each at rate of £60.
Liverpool Sanatorium, Delamere Forest, Frodsham.—Asst. to the Med. Supt. £250.
Liverpool, Walton Hospital.—Res. Asst. M.O.'s. Each £200.
Macclesfield General Infirmary.—Second H.S. At rate of £150.
Manchester, Baguley Sanatorium.—Jun. Res. M.O. £300.
Manchester Hospital for Consumption and Diseases of the Throat and Chest.—Hon. Consulting Thoracic Surg.
Manchester, St. Mary's Hospitals.—H.S. for Whitworth Park Hospital. At rate of £50.
Manchester and Salford Hospital for Skin Diseases.—H.S. At rate of £100.
Middlesbrough, Holgate Municipal Hospital.—Jun. Res. M.O. £170.
National Hospital for Diseases of the Heart, Westmoreland-street, W. Res. M.O. At rate of £150.
Newcastle-upon-Tyne, Royal Victoria Hospital.—Res. M.O. £350.
Nottingham General Hospital.—H.S. for Ear, Nose and Throat Dept. At rate of £150.
Plymouth City Hospital.—Res. M.O. £350.
Preston and County of Lancaster, Queen Victoria Royal Infirmary. H.P. £150.
Preston and County of Lancaster Royal Infirmary.—Asst. Radiologist. Also H.S. £150.
Preston, Sharoe Green Hospital.—Jun. Res. M.O. At rate of £ 00.
Princess Beatrice Hospital, Richmond-road, Earl's-court, S.W.—Sen. Res. M.O. £150.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Dist. Res. M.O. Also Asst. Res. M.O. Each at rate of £80.
Queen's Hospital for Children, Hackney-road, E.—H.S. and Cas. O. Each at rate of £100.
Rhondda U.D.C.—Asst. M.O. £500.
Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.
Roy College of Physicians, Pall Mall East.—Milroy Lecturer.
Roy College of Surgeons of England.—Conservator.
Roy Eye Hospital, St. George's-circus, Southwark, S.E.—H.S. nd Asst. H.S. At rate of £150 and £100 respectively.
Sal ury, General Infirmary.—H.P. At rate of £150.
Shre sbury, Royal Salop Infirmary.—Res. H.P. At rate of 160.
Sou mpton Children's Hospital and Dispensary for Women.— es. M.O. At rate of £150.
Sout mpton Civic Centre.—Antenatal M.O., &c. At rate of 00.
Sout Shields, Ingham Infirmary.—Sen. and Jun. H.S.'s. £200 d £150 respectively.
Sud Medical Service.—M.O. £E.720.
Sw ea, Infectious Diseases' Hospital.—Res. M.O. £350.
Wa ll County Borough.—Asst. M.O. £600.
Wa ll General Hospital.—H.S. At rate of £150.
Wi ester, Royal Hampshire County Hospital.—H.S. At rate f £125.
We n-super-Mare, General Hospital.—Res. M.O. £150.

Births, Marriages, and Deaths

BIRTHS

ARCHER.—On August 3rd, at a London nursing-home, the wife of Basil Crowhurst Archer, M.D., of Harley-street, and Hamilton-terrace, N.W., of a daughter.

FOX.—On August 9th, in London, to Margaret and T. F. Fox—a son.

HOPKINS.—On July 30th, at St. Clement's, Exmouth, Devon, the wife of Dr. U. M. Hopkins, of a daughter.

MARRIAGES

BOAKE—BERRY.—On August 1st, at Coulsdon Old Church, Surrey, Haltier William Boake, M.R.C.S., L.R.C.P., to Elizabeth Mary, only daughter of Mr. and Mrs. C. John Berry, of Fairfields, Purley, Surrey.

DEATHS

CLAPHAM.—On August 3rd, at Madeley House, Park-road, Peterborough, Harold Clapham, M.R.C.S., L.R.C.P., aged 51 years.

HILL.—On August 1st, at Globe-road, E., Isabel Hill, M.B., Ch.B. Edin.

MALLORY.—On August 4th, suddenly, at Edinburgh, Fred Rous Mallory, L.D.S., D.D.S.

ROE.—On August 2nd, at St. Thomas's Hospital, Arthur Dumville Roe, B.A., M.B. Camb., M.R.C.S. Eng., [of Rosend, Bookham.

SMITH.—On August 3rd, at Glebe-road, Cambridge, William Alexander Smith, M.A., B.M. Oxon., F.C.S., in his 81st year.

TROTTER.—On August 5th, at Bishopsgarth, Stockton-on-Tees, Walter Octavius Trotter, M.R.C.S., L.R.C.P., J.P., aged 75.

TURNBULL.—On July 27th, at the British Military Hospital, Ranikhet, India, Colonel John Archbold Turnbull, D.S.O., late R.A.M.C., Assistant Director of Medical Services, Meerut District.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

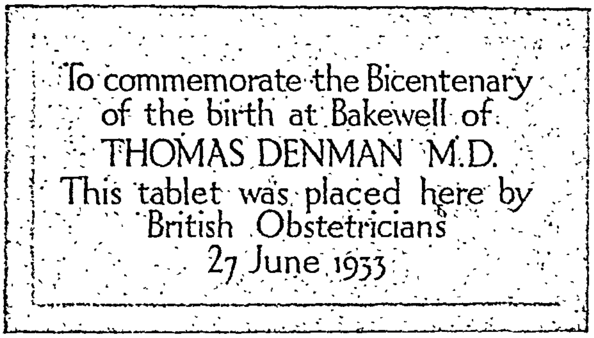
NOTES, COMMENTS, AND ABSTRACTS

THE BICENTENARY OF THOMAS DENMAN

AT Holme Hall, Bakewell, the residence of Mr. E. L. Hoyle, there was exhibited on July 21st a tablet provided by British obstetricians to commemorate the bicentenary of the birth of the famous obstetrician Thomas Denman. This tablet, a facsimile of which appears below, is to be placed in the parish church at Bakewell where he was born. Dr. Herbert Spencer, on the occasion of its public exhibition, delivered the following brief address on Denman's life and work.

Dr. Spencer's Address

This tablet commemorates the bicentenary of the birth at Bakewell of Thomas Denman, M.D., who by the time he was 50 years of age was the most distinguished and esteemed of British obstetricians, and who maintained his pre-eminence up to the time of his death in his eighty-third year. The second son and third child of John Denman, an apothecary, he was born at Bakewell on June 27th, 1733. Besides a son, Thomas, who became Lord Chief Justice of England and was raised to the peerage as Lord Denman of Dovedale in 1834, he had twin daughters, who married distinguished physicians, the first-born becoming the wife of Dr. (afterwards Sir Richard) Croft, and the second the wife of Dr. Matthew Baillie.



To commemorate the Bicentenary
of the birth at Bakewell of
THOMAS DENMAN M.D.
This tablet was placed here by
British Obstetricians
27 June 1933

In an autobiographical memoir, written in 1779, which appeared after his death, with some additions by his son-in-law Matthew Baillie, he divided his life into three periods—his home life till he was 21, his service as a naval surgeon from the age of 21 to 30, and his life as an obstetrician from the age of 30 till his death. The first period he spent entirely at home, proving a marked exception to the generalisation of the Gentleman of Verona that "home-keeping youth have ever homely wits." He was educated at the Free School at Bakewell, and, up to the age of 21, he tells us he had never been away from home for a week, living on a homely diet and hardly ever out of bed at ten o'clock at night, a hungry, sharp-set lad with some learning, tolerably well informed in the Latin tongue and understanding some Greek. He also had a "very competent knowledge of pharmacy and knew as much of the diseases as the frequent reading of Sydenham's works and a few other books could give him."[1] His father having died in 1752, Thomas assisted his brother Joseph in the practice of apothecary to which Joseph had succeeded, and in September, 1754, became a medical student at St. George's Hospital, London, paying 10*s.* 6*d.* a week for board and lodging at a hairdresser's in Dean-street, Soho, who he says had a hard bargain. The money (£75) which he had brought with him to pay the hospital fees and for two courses of anatomical lectures which he attended
assiduously, was wholly expended in six n
He therefore had to get some employment
immediate support, and on April 3rd, 1755, he
as surgeon to a ship "of sixth rate."

During the succeeding nine years (the sec
of his life) he served as surgeon's mate or
on ships engaged in the wars with France and
These nine years were full of adventure and n
from danger. Denman was serving on the
ship *Ramillies* in which Admiral Byng mad
unfortunate attempt to relieve Minorca, an
surgeon on the *Edgar* (Captain Blake) whe
English, under Boscawen, captured the F
ships *Centaur* and *Temeraire*. At the sie
Belleisle—like Harvey at the battle of Edg
Denman was very near being killed by a ca
shot. And even more dangerous than the sh
the enemy were the unhealthy berths and bill
the sailors; no less than one-sixth of the men
Edgar died at the siege of Havannah from di
which affected also Denman, so that he was "
to enjoy our meeting with eight or ten sail of men
ships and taking them prizes." During the
part of his naval career he was occasionally in fin
straights, sometimes not having a penny in his po
and even when his share of prize money put h
funds he was apt to spend it during his shore-
Gradually, however, he learned to be frugal (c
necessity of which he insists in his memoir) a
steady his naturally impetuous disposition, stea
being in his opinion worth every other quality,
in man or woman. When the *Edgar* was pa
he was possessed of more than £500, at the end
second period of his career, which he describes
wandering, though not in general a disagre
life.

Returning to Bakewell and his friends in
he found a great alteration in them and in his
sentiments. He determined to apply himself t
study of anatomy and midwifery. After a
unsuccessful attempt to make a practice at Winch
which cost him £200, he came to London, obt
the M.D. degree of Aberdeen University in
and commenced practice, at first in rooms and
on the strength of his salary (£75) as surgeon t
royal yacht, took a small house in Oxendon-s
Haymarket. He was then free from debt;
excepting his furniture, he had but 24*s.* in the w
From that time onwards, however, his practic
position as an obstetrician rapidly increased
1769 he was appointed man-midwife to the Midd
Hospital, the first British general hospital to
lying-in wards, a post he held till his resig
in 1783. By conducting lectures on midw
with his friend Dr. Osborn, he got upwards of
a year. In 1770 he married Elizabeth Brod
whose virtues he gives affectionate testimony in
memoir. In this year he earned £650 and
removed to a large house in Queen-street, Col
square. He was the first to obtain the diplom
Licentiate in Midwifery instituted by the R
College of Physicians in 1783. The death of
William Hunter in the same year raised him a
into the highest practice and placed him at the
of his branch of the profession. The house in Qu
square was burnt out in 1781, when the life of
little son was saved by the father's presence of m
and determination, and he subsequently moved
address to Old Burlington-street and finally
Mount-street, Mayfair. Here he died suddenly
Nov. 26th, 1815, and was buried in St. Jam
Church, Piccadilly, where a simple marble ta
is erected to the memory of himself and his w
This is not an occasion for detailed consideration
Dr. Denman's works,[2] some of which obtained w

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[1] Introduction to the Practice of Midwifery, 7th ed., 1832.

[2] History of British Midwifery, 1650–1800. By Her
Spencer.

popularity and were translated into foreign languages; but it may be stated that, in addition to an admirable historical account of the work of ancient and contemporary writers on obstetrics, he made many original observations and introduced new methods [illegible]atment which have stood the test of time. [illegible]is advocacy of patience and gentleness in the [illegible]gement of normal labour was as valuable then [illegible]w. His writing is characterised by sound judgment, honest statement, and lucid expression, often illuminated by much learning. His literary reputation rests firmly on his "Aphorisms," which deservedly maintained its popularity for more than 50 years, and his "Introduction to the Practice of Midwifery," of which seven editions were published. The quarto edition of this work (1801) is one of the most splendid works on the subject in the English language, whether regarded from the point of view of format, paper, printing, and illustration of the book, the learning and knowledge it exhibits, or the ordered and judicial manner in which that knowledge is presented.

Of Denman's character a pious account is given by his son-in-law, Matthew Baillie, who states that he had an ardent curiosity after knowledge, perfect integrity and great benevolence of disposition, which was not chilled by the progress of age, but was mixed to the last with all the cheerful animation which belongs to youth. His habit of early rising afforded him many hours of leisure, which were always actively employed, for he regarded idleness as the root of all evil. In one of his voyages he taught himself French. He did a great deal of miscellaneous reading, especially of the English classics, Bacon being a favourite author and Shakespeare his constant companion and daily study. Baillie states further that his father-in-law was religious, but free from dogmatism or bigotry; fond of society and interested in the sports and amusements of the young; personally moderate and abstemious, though generous and bountiful to those in distress; of a sweet temper and agreeable in conversation; respected and loved by his family and friends. "In his person he was firm and strongly made, about 5 ft. 8 in. in height. His hair was perfectly white, his complexion fresh and vigorous, his eye, which was blue, continued remarkably clear and bright, his hearing was unimpaired, and his teeth remained entire to the very last. Such he was in the eighty-second year of his age."

The suggestion of Dr. Miles Phillips to commemorate the bicentenary of the birth of Thomas Denman at Bakewell has been cordially received by British obstetricians, who have provided the tablet which I have the pleasure of exhibiting.

Lord Denman, who brought to the meeting a fine painted portrait of his ancestor, thanked Dr. Spencer for his address in the name of the meeting.

Dr. Miles Phillips read a list of universities, colleges, and obstetrical societies represented at the meeting.

Lady (John Emmott) Barlow showed some manuscript records of her ancestor, and some pharmacy pots which belonged to his father were also exhibited.

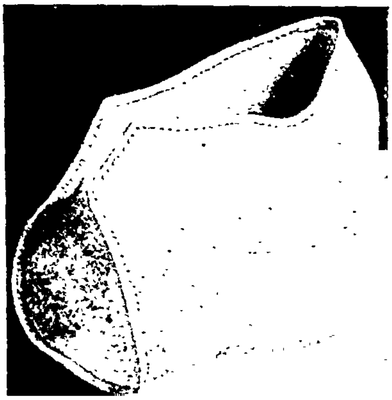
SCOLIOSIS AND ITS TREATMENT

SCOLIOSIS has engaged the attention and taxed the ingenuity of successive generations of orthopædic surgeons. The deformities due to congenital or pathological conditions of the bodies of the vertebræ are not difficult to understand, but the ætiology of the large group labelled "idiopathic scoliosis" is still far from clear. Philip Lewin[1] says that a working model, made by Carey, showing the anatomical and physiological relations of muscles and bone-levers in the normal back, enabled him to visualise the normal and abnormal equilibrium of the musculature of the body. He found that with only 13 pairs of spinal muscles there were no fewer than 67 million possible combinations of muscle imbalance, and he concluded that idiopathic scoliosis is probably a result of the unbalanced action of bilateral antagonistic muscles, due to malnutrition during the first decade of life.

Lewin gives a brief description of the Galeazzi method of treating scoliosis. After a preliminary period of intensive mobilisation to make the back as supple as possible, the deformity is corrected by means of special apparatus. This apparatus consists of two units: one for the pelvis and one for the shoulder-girdle, and each unit permits movement on a horizontal and vertical axis. The patient is placed on a platform within the apparatus with the trunk horizontal and hips and knees flexed (the quadruped attitude); the pelvis and the shoulders are secured to each unit by a plaster section. A bandage is placed over the convexity of the curves and held firmly by assistants to act as fulcrum; the units are then manipulated so as to deflex and derotate the curves of the back. When the desired degree of correction has been obtained, the two plaster sections are joined together by a plaster bandage. The casts are changed every three months over a period of 18 to 36 months. Lewin shows pictures and radiograms of one of Galeazzi's patients in whom a remarkable degree of improvement was obtained; but though he speaks in high terms of this method of treatment, he mentions as disadvantages the cost of the apparatus, the long period of preliminary preparation, the difficulty of applying the plaster, and the length of the after-treatment required.

A DEVICE TO MASK LEG SHORTENING

FROM an æsthetic point of view, a new device, known as the Incelcas Improved Foot Elevator, for use in cases of shortening of one leg, has distinct advantages over a surgical boot with a cork inlay, since it is worn with ordinary boots and shoes. It is a light appliance (average weight 5 oz.) worn under the sock or stocking and made of non-inflammable celluloid moulded to the foot and also to the shoes with which it is to be worn. It is invisible under a trousered leg, and certainly far less obvious when worn with a short skirt than is a surgical boot. The only difference in the shape of the foot and ankle viewed from the side is a slight bulging above the upper rim of the shoe behind made by the casing in which the actual heel of the wearer rests. For severe degrees of shortening, say over 3 in., the fact that there is no block under the toes but only under the heel and instep would mean that the foot in walking would be too steeply inclined downwards for comfort, but for slight degrees of shortening, which are still too great to be compensated for merely by a higher heel in one shoe, this device would seem to merit trial, as it allows more freedom of movement to toe-joints than does a surgical boot. The material is non-absorbent and hence easily cleaned: it can also be repaired at small cost. The device is obtainable from the manufacturers, Incelcas, whose fitting-room is at 16, Cosway-street, Marylebone-road, London, N.W.1.



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[1] Surg., Gyn., and Obst., 1933, lvi., 79.

HOSPITAL FLOORING

THE question of suitable flooring material for the wards of hospitals is a perplexing one, and still largely unsolved. It is discussed at length in a report on hospital construction presented by a British subcommittee, over which Mr. C. Ernest Elcock presided, to the third International Hospital Congress, and published in *Nosokomeion.* This committee was guided in general by the admirable sentiment:

> "... it should be remembered that the primary reason for the existence of the unit, and indeed of the whole hospital, is the treatment of sick persons in such a manner as to ensure early convalescence."

But in the matter of flooring it seems to have lost its concern for the patient, and to be carried away by considerations of durability and appearance. What qualities do the patient and (an important second) the nurse ask of the ward floor? In the first place it should be silent. It should not re-echo eternally to the tap of the nurse's heels, the tramp of the house surgeon, or the pontifical tread of the matron. In the second place it should not have a surface which by any process known to woman can be polished. A smooth surface seems to act like a dark charm upon ward sisters; floor polish is freely expended, and nurses and doctors skid about their duties over a surface as dangerous as polished glass.

When a patient at the far end of the ward starts a secondary hæmorrhage, the nurse has to approach him with the skill of an expert skater, which certainly adds to the excitement but hardly furthers the interests of the patient. Linoleum is unsatisfactory because it can be polished; the subcommittee dislike it because it tends to rise from the floor and gets worn at the joints. Cork lino is too soft for bed traffic. Rubber is useless unless more than five-sixteenths of an inch thick, and then it is expensive; the subcommittee think it satisfactory for use in corridors and operation theatres, but make no mention of its use in wards. Why not? Here is a material which is soundless to tread and which cannot be polished; surely it repays the initial outlay? But no explanation is given for its rejection. Tiles are noisy; terrazzo can be polished, and, moreover, it is often laid out in sections divided by strips of brass, which are presumably as unsympathetic to the misapplied heel as a series of banana skins. Cement is dusty as well as noisy; asphalt, we are told, "is quiet and cheap but has not a very good appearance." Does that matter? Composition, made of cement and sawdust, has several disadvantages, the chief being that it will not stand wetting. And so we come to wood block floors—teak for choice—which the subcommittee think very suitable for use in wards, regardless of the drawbacks of noise and polish which are its inevitable companions. The ideal floor covering has yet to be invented.

HOLIDAYS FOR WORKING GIRLS

THE following letter reaches us from the Factory Girls' Country Holiday Fund: "Will you allow us to make a very urgent appeal on behalf of this fund? Started many years ago in central London at Saffron Hill, it ministers now to girls and women living and working as far apart as Stratford and Battersea. A visit to one of the many factory girls' clubs scattered all over London, where these girls and women assemble and bring week by week, for months, their own small contributions, often a few pence, towards a holiday ardently longed for as a rest from monotonous work, and a change from the lifeless air of crowded homes, would touch the hearts of anyone more fortunate. A visit to the headquarters of the fund on a Saturday in July and August, the months in which the greater number of girls and women are sent away and come back, would convince a thorough sceptic of the real utility and value of our work. The fund aims at helping those who seek to some extent to help themselves, and at arranging a fortnight's hol for them. This year, unfortunately, many of girls and women, owing to lack of employment an other members of their family, cannot hope to more than one week, unless the response to our ap is exceptionally generous. Our organisation in course of years has become very complete. We ready and waiting hundreds of homes with ki cottagers who will welcome their visitors and do utmost to make them comfortable and happy. have many experienced voluntary workers who p their services at our disposal, make all neces arrangements, and take a friendly interest in visitors as they come week by week. Our subscribers have stood by us nobly through m difficult years. We are asking for more support f the kindly general public, and we do so in the confi hope that, bad as times are for most of us, they not allow our girls and women to go without the li rest and change they need so much. Subscript and donations will be thankfully received acknowledged by the hon. treasurer, Mrs. Slater Miss Mary Canney, 75, Lamb's Conduit-str London, W.C.1."

This appeal is signed by Sir Thomas Barlow, Bishop of London, Lady Sandwich, Mrs. Creigh Miss Lilian Braithwaite, the Rev. R. F. Hor the Chief Rabbi, Lady Loch (chairman), Mrs. Slater.

BRADSHAW'S CONTINENTAL HANDBOOK.—The edition of this well-tried handbook, revised competent authorities all over Europe, may be great value to the traveller. It claims to be the guide book in print which can inform its reader the topographical and other changes which taken place in some of the world's capital citi in Rome, for example, in Madrid, in Barcelona other towns in Spain, in Constantinople—now ca "Istanbul," and elsewhere. Its summarised no at the introduction to each country, reflect latest political development. For the tourist wh stay in a foreign country is limited to one place there is not sufficient detail; but for touring, globe-trotting, and last but not least, for those seek information as to the remedial and med qualifications of the thermal resorts of Eur the book can be safely recommended. The p is 3*s.* 6*d.*, from Bradshaw House, Surrey-str London, W.C.2.

"THE EUGENIST."—On July 20th appeared first number of a new journal with this title. Acc ing to its editor, the kingship is supreme in matters of religious theory and structure; gives prominence to an open letter addressed to King, and he advocates the establishment of Ro Courts of Eugeny whose function will be to dec each eugenic problem as it arises. An official co pulsory register is to be maintained of certain clas of unfit persons, whose marriage would be prohibit unless consented to by these courts. Sterilisation operation is opposed, and segregation is advocat instead. The editor of the *Eugenist* believes that Gr Britain is steadily going insane, both absolutely a relatively, and that this is due to unnatural rep sions of the normal impulses of the human race.

INDEX TO "THE LANCET," VOL. I., 1933

THE Index and Title-page to Vol. I., 1933, whi was completed with the issue of June 24th, now ready. A copy will be sent gratis to su scribers on receipt of a post-card addressed to Manager of THE LANCET, 7, Adam-street, Adelp W.C.2. Subscribers who have not already indicat their desire to receive Indexes regularly as publish should do so now.